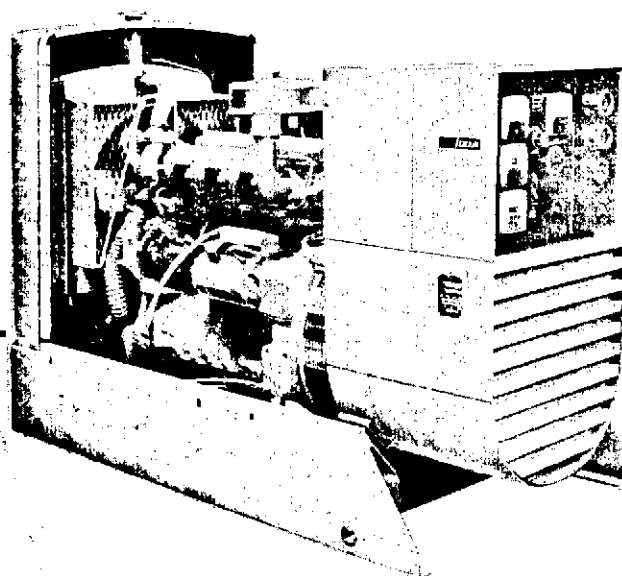


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has gaps in its page  
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assigns it.

Onan

# Parts Manual

DDA  
GenSet



944-0222

SPEC D

7-81

Replaces

11-79 (Spec D)

Printed in U.S.A.

Cummins  
**Power Generation**

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# GENERAL INFORMATION

## INSTRUCTIONS FOR ORDERING REPAIR PARTS

For parts or service, contact the dealer from whom you purchased this equipment or refer to your Nearest Authorized Onan Parts and Service Center.

To avoid errors or delay in filling your parts order, please furnish all information requested.

Always refer to the nameplate on your unit.

1. Always give the MODEL, SPEC NO. and SERIAL NO.

The diagram shows a rectangular nameplate with the Onan logo at the top. Below the logo is a large rectangular box labeled "MODEL AND SPEC NO.". Below that is a smaller rectangular box labeled "SERIAL NO.". The nameplate is shown with a tab at the bottom, indicating it can be inserted into a document. The reference number "M-1149" is printed at the bottom right of the nameplate.

For handy reference, insert "YOUR" nameplate information in the spaces above.

2. Do not order by reference number; always use part number and description.
3. Give the part number, description and quantity needed of each item. If an older part cannot be identified, return the part prepaid to your dealer or nearest Onan Parts and Service Center. Print your name and address plainly on the package. Write a letter to the same address stating the reason for returning the part.
4. State definite shipping instructions. Any claim for loss or damage to your unit in transit should be filed promptly against the transportation company making the delivery. Shipments are complete unless the packing list indicates items are back ordered.

Prices are purposely omitted from this Parts Catalog due to the confusion resulting from fluctuating costs, import duties, sales taxes, exchange rates, etc.

For current parts prices, consult your Onan Dealer, Distributor or Parts and Service Center.

"En esta lista de partes los precios se omiten de proposito, ya que bastante confusion resulto de fluctuaciones de los precios, derechos aduanales, impuestos de venta, cambios extrajeros, etc."

Consiga los precios vigentes de su distribuidor de productos "ONAN."

Std. #36

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This parts catalog applies to the standard generator sets listed below. Any engine parts modified or added by Onan will be listed in this catalog and have been assigned Onan part numbers for identification. These modified or added parts supersede similar parts listed in the Engine Manufacturer's manuals. The illustrations are arranged in groups of related items, and each part or assembly is identified by a reference number. All parts illustrated are typical, and unless otherwise mentioned, parts are interchangeable. These typical illustrations are subject to change and reflect only the latest replacement parts arrangement. The Right and Left generator set sides are determined by facing the front end of the engine.

SET DATA TABLE

MODEL IDENTIFICATION	RATING	MODEL IDENTIFICATION	RATING
25.0 DDA - * / # £	25,000 WATTS	30.0 DDA - * / # £	30,000 WATTS

ELECTRICAL DATA TABLE

* VOLTAGE CODES	VOLTS	HERTZ	WIRE	PHASE	NOTES
3	120/240	60	3	1	
6D	240/480	60	4	3	
7	220/380	60	4	3	
9X	347/600	60	4	3	
15	120/240,	60	12	1	+
15	120/208,	60	12	3	+
	120/240,				
	127/220,				
	139/240,				
	240/416,				
	254/440,				
	277/480				
515	110/220,	50	12	1	+
	115/230				
515	110/290,	50	12	3	+
	110/120,				
	115/200,				
	115/230,				
	120/208,				
	127/220,				
	220/380,				
	230/400,				
	240/416,				
	254/440,				
15R50	@	60	12	3	@+

- \* - Voltage codes follow model letters designations.
- # - Specification number; number 1 is standard, all others indicate variations.
- £ - Specification letter; letter advances (A to B, B to C, etc.) with major manufacturing changes.
- + - These generators are reconnectable, refer to Operator's manual for wiring data.
- @ - These are Penn State Sets; voltage codes same as 15; special parts are identified in the Parts manual when applicable.

## NOTICE!

ITEMS REFERENCED AS **OPTIONAL** INDICATE PART IS FACTORY INSTALLED AND MAY NOT BE APPLICABLE TO ALL MODELS. FOR FIELD CONVERSIONS ADDITIONAL PARTS ARE USUALLY REQUIRED.

## REPLACEMENT ENGINE

### ONAN PART NO.

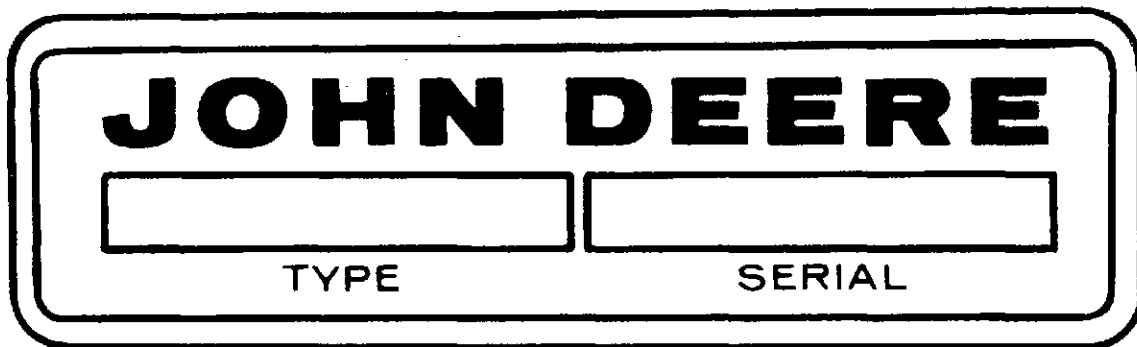
100-1265

\*Engine, Replacement

Includes: Complete Cylinder Block, Fuel Pump, Fuel Filter, Oil Filter, Governor, Fan Blades (Pusher Type), Water Pump, Oil Pan, Oil Fill, Exhaust Manifold, Flywheel Housing, Starter Adapter, Fan Belt, Alternator Drive Belt and Flywheel.

Excludes: Alternator, Temperature Sender, Oil Pressure Sender, Starter, Air Cleaner, and Radiator.

**NOTE:** This replacement engine is for Onan's Standard Spec 1 generator sets, for all other refer to the factor for replacement information.

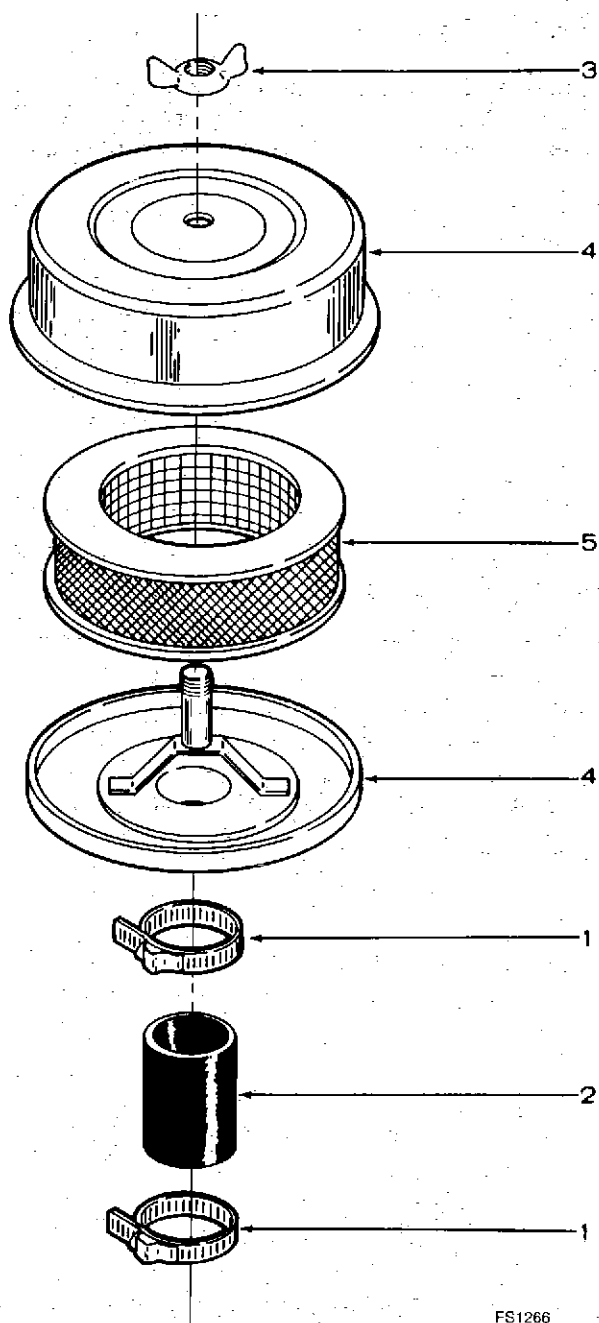


For handy reference, insert "YOUR" nameplate information in the spaces above.

## ENGINE REPLACEMENT PARTS

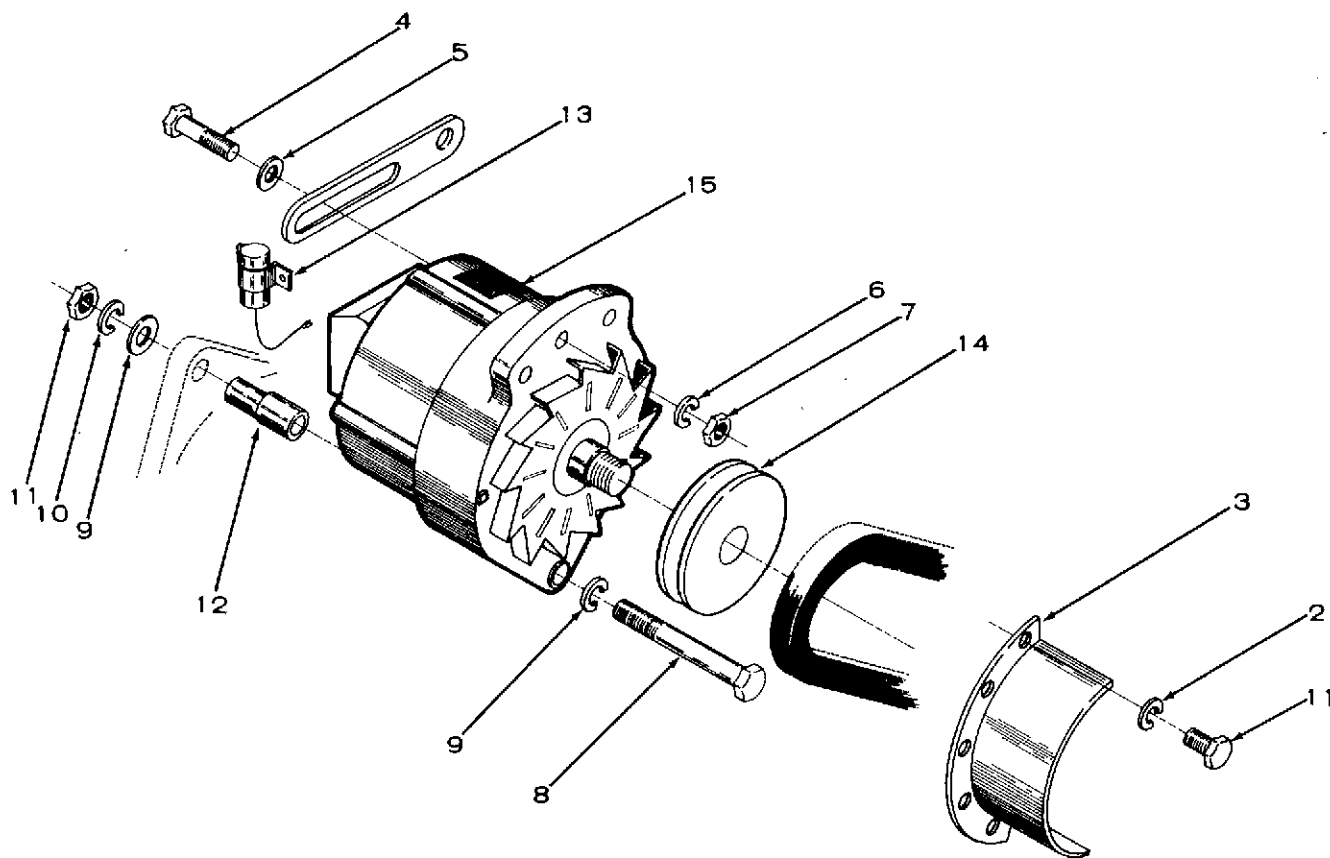
All engine replacement parts must be ordered from the engine manufacturer, except those modified or added by Onan. When ordering engine parts, refer to the manufacturer's nameplate and supply the Model, Spec, Serial numbers and other available information. Refer to the engine manufacturer's manuals for your nearest authorized distributor or parts center; or contact the Onan distributor from whom you purchased this set for assistance in ordering replacement parts.

## AIR CLEANER



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	503-0465	2	Clamp, Hose
2	503-0482	1	Hose, Rubber (2-1/4" ID x 3" Lg)
3	865-0020	1	Nut, Wing (1/4-20)
4	140-1083	1	Air Cleaner Assembly (Includes Element)
5	140-1089	1	Element, Air Cleaner

# ALTERNATOR



XES1173

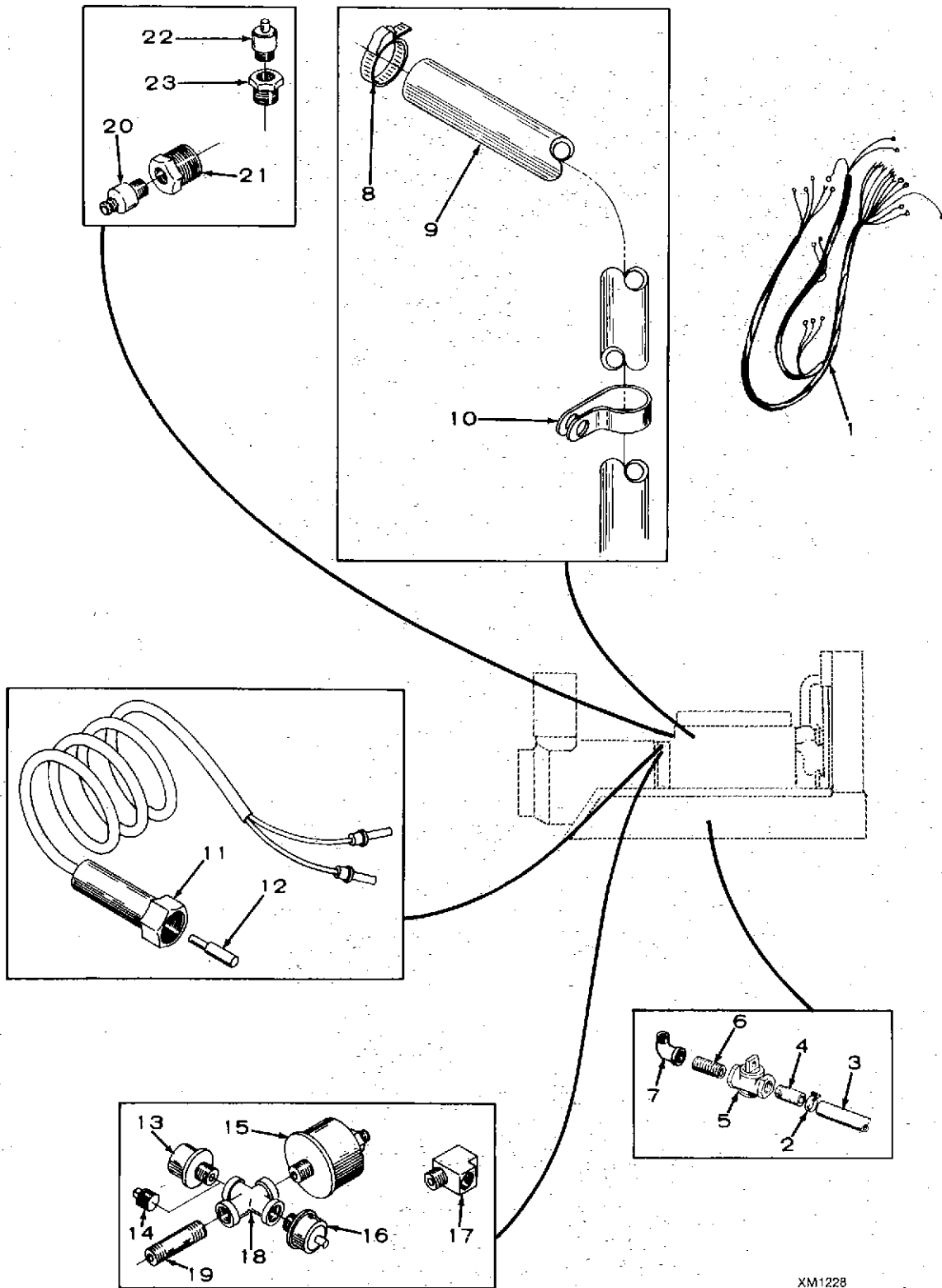
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	800-0024	1	Screw, Cap - Hex Head (5/16-18 x 1/2")
2	850-0045	1	Washer Lock - Spring (5/16")
3	191-0725	1	Guard, Belt
4	800-0030	1	Screw, Cap - Hex Head (5/16-18 x 1-1/4")
5	526-0115	2	Washer, Flat (11/32" ID x 11/16" OD x 1/16" Thk)
6	850-0045	1	Washer, Lock - Spring (5/16")
7	862-0015	1	Nut, Hex (5/16-18)
8	800-0058	1	Screw, Cap - Hex Head (3/8-16 x 3")
9	526-0035	2	Washer, Flat (17/32" ID x 7/8" OD x 1/8" Thk)
10	850-0050	1	Washer, Lock - Spring (3/8")
11	862-0003	1	Nut, Hex (3/8-16)
12	232-2183	1	Spacer, Stepped
13	312-0201	1	Capacitor
14	191-1099	1	Pulley
15	191-1388	1	Alternator (Includes Regulator and Capacitor)
16	191-1390	1	Regulator, Voltage - Part of Alternator (Includes Capacitor)

**A7**

944-0222 (JULY 1981)



# MISCELLANEOUS ENGINE PARTS - LEFT SIDE



XM1228

# MISCELLANEOUS ENGINE PARTS — LEFT SIDE

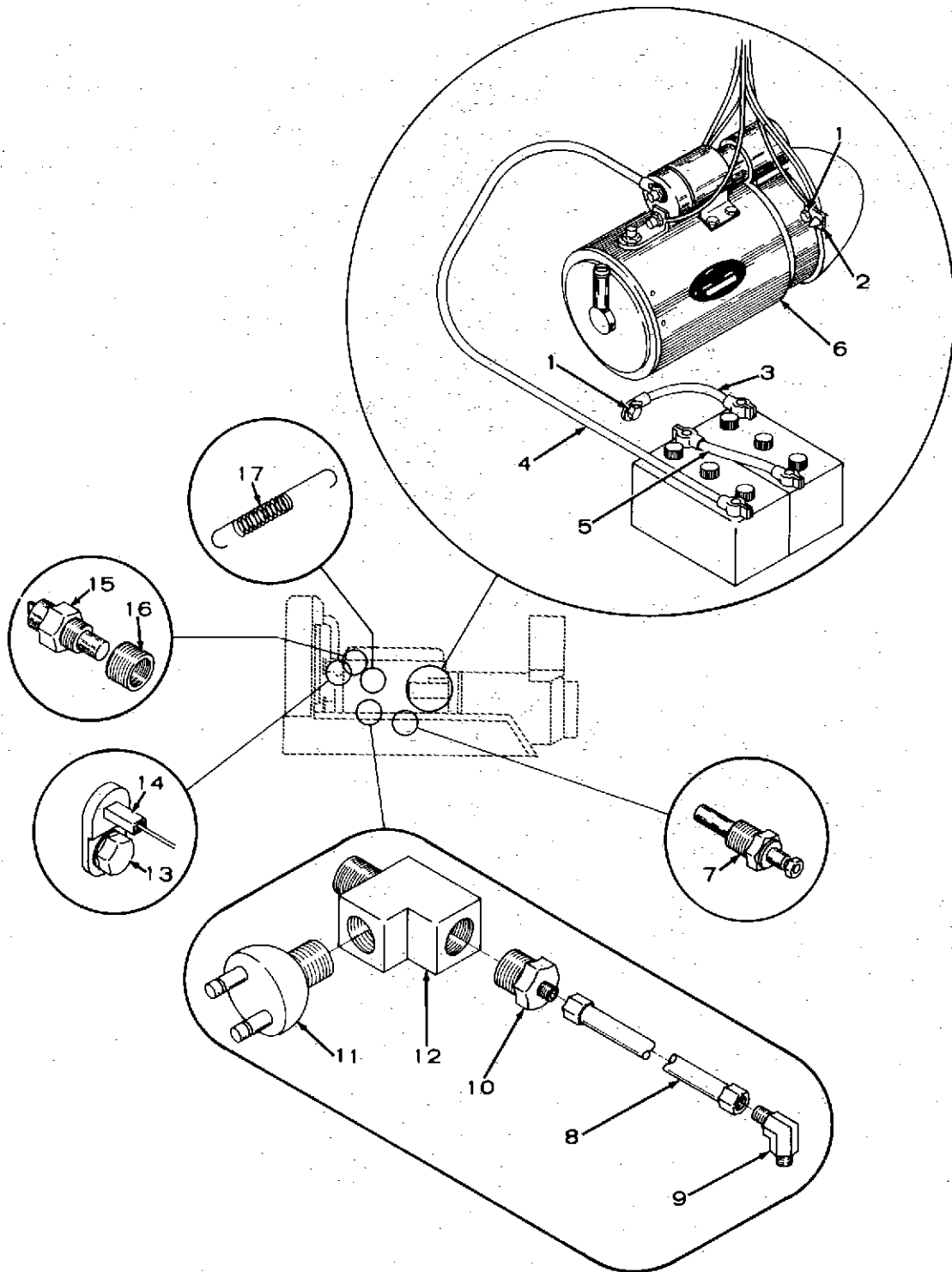
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	WIRING HARNESS - ENGINE		
	338-0771	1	Standard
		1	Special
2	503-0197	1	Clamp, Hose
3	503-0888	1	Hose, Rubber (3/4" ID x 1" OD x 17" Lg)
4	505-0185	1	Nipple, Pipe - Half
5	504-0011	1	Valve, Cock
6	505-0100	1	Nipple, Pipe - Close (1/2" NPT x 1-1/8")
7	505-0050	1	Elbow, Pipe - Street, 90 DEG (1/2" NPT)
8	503-0197	1	Clamp, Hose
9	503-0889	1	Hose, Rubber (3/4" ID x 1" OD x 24" Lg)
10	148-0274	2	Bracket, Support - Hose
11	302-0750	1	†Sender, Tachometer
12	302-0967	1	†Tang, Tachometer
13	309-0064	1	†Switch, Pressure - Oil
14	505-0057	1	Plug, Pipe (1/8" NPT) - (Used When No Oil Switch)
15	193-0244	1	Sender, Pressure - Oil

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
16	309-0169	1	Switch, Pressure - Oil
17	505-0058	1	Tee, Pipe (1/8" NPT) - (Used In Some Installations)
18	505-0763	1	†Cross, Pipe (1/8" NPT)
19	505-0098	1	Nipple, Pipe-Close (1/8" NPT x 3/4")
20	193-0246	1	Sender, Temperature - Engine Coolant
21	505-0131	1	Bushing, Reducer - Hex (3/4" NPT x 3/8" NPT)
22	309-0179	1	†Switch, Thermostatic - High Coolant Temperature - Shutdown
23	505-0117	1	Bushing, Reducer - Flush, Brass (1/2" NPT x 3/8" NPT)

\* **NOTE:** For Special Applications Use Standard Wiring Harness and add electrical leads as required for optional sensors, switches per Gen Set wiring diagram.

† - Optional items, used with fault lights or gauges on Engine Control Panel.

# MISCELLANEOUS ENGINE PARTS - RIGHT SIDE



XM1229

**A10**

944-0222 (JULY 1981)

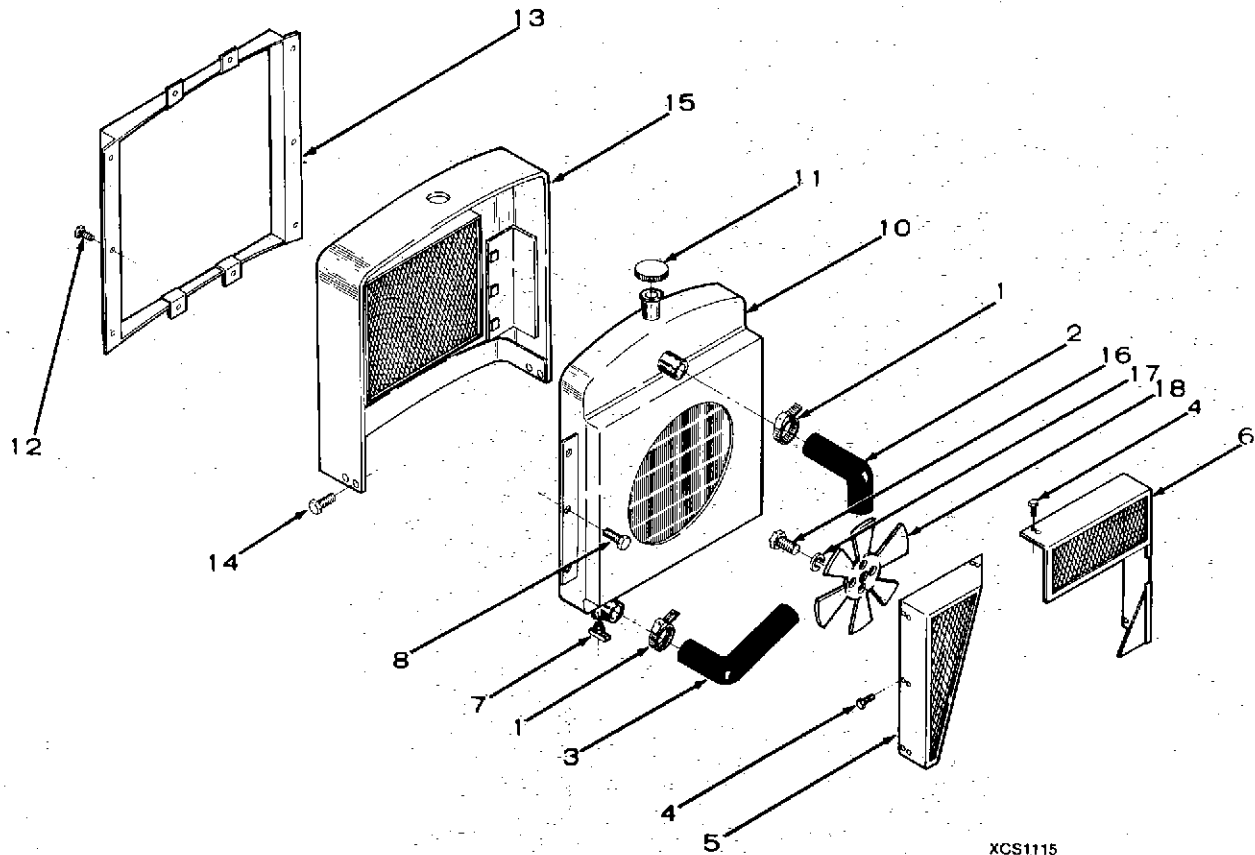
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# MISCELLANEOUS ENGINE PARTS — RIGHT SIDE

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	ATTACHING HARDWARE FOR STARTER & CABLES		
	800-0051	3	Screw, Cap - Hex Head (3/8-16 x 1-1/4")
	850-0050	3	Washer, Lock - Spring (3/8")
	856-0010	1	Washer, Lock - External/Internal Tooth (3/8")
	800-0090	1	Screw, Cap - Hex Head (1/2-13 x 1")
	856-0013	1	Washer, Lock - External/Internal Tooth (1/2")
2	332-1292	1	Terminal Board
3	416-0530	1	Cable, Battery - Negative (16" Lg)
4	416-0531	1	Cable, Battery - Positive (24" Lg)
5	416-0446	1	Cable, Battery - Jumper
6	191-1117	1	Starter, Electrical - 12 Volt
7	193-0249	1	†Sender, Temperature - Oil
8	501-0395	1	†Line, Fuel - Flexible
9	502-0688	1	†Elbow, Pipe - 90 DEG (1/8-27" NPT Male x 1/2-20 Male)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
10	502-0619	1	†Adapter, Pipe (1/8-27" NPT Male x 1/2-20 Male)
11	193-0302	1	†Sender, Pressure - Fuel
12	502-0058	1	†Tee, Pipe - Street
13	821-0029	1	Screw, Self-locking - Hex Washer Head (3/8-16 x 3/4")
14	309-0269	1	†Switch, Thermostatic - Low Engine Temperature
15	309-0178	1	†Switch, Thermostatic - High Coolant Temperature - Alarm
16	505-0117	1	†Bushing, Reducer - Flush, Brass (1/2" NPT x 3/8" NPT)
17	134-1437	1	Spring, Holddown - Shutter Pivot
† - Optional Items, used with fault lights or gauges on Engine Control Panel.			

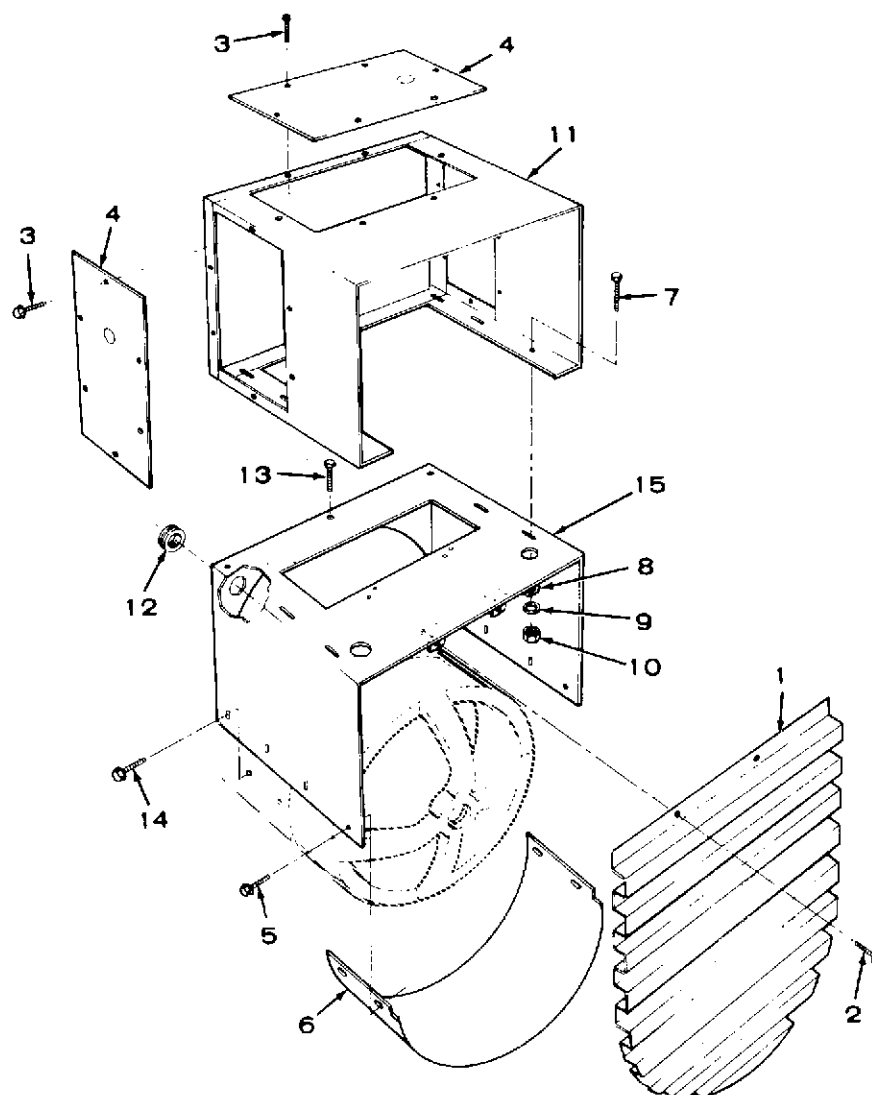
# COOLING SYSTEM (WITH RADIATOR)



XCS1115

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	503-0365	4	Clamp Hose
2	503-0727	1	Hose, Radiator - Upper
3	503-0635	1	Hose, Radiator - Lower
4	815-0181	8	Screw, Tapping - Hex Head (#10-32 x 1/2")
5	130-0934	1	Guard, Fan - Right Side
6	130-0935	1	Guard, Fan - Left Side
7	504-0028	1	Cock, Drain
8	821-0014	6	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")
9	870-0113	6	Nut, Hex with Retaining Clip (5/16-18)
10	130-0815	1	Radiator (Includes Cap)
11	130-0449	1	Cap, Pressure
12	815-0181	10	Screw, Tapping - Hex Head (#10-32 x 1/2")
13	405-1054	1	Flange, Air Duct
14	821-0014	8	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")
15	405-1811	1	Panel, Front
16	800-0050	4	Screw, Cap - Hex Head (3/8-16 x 1" Lg)
17	850-0050	4	Washer, Lock - Spring (3/8")
18	130-0941	1	Fan, Cooling - Engine

## CONTROL HOUSING



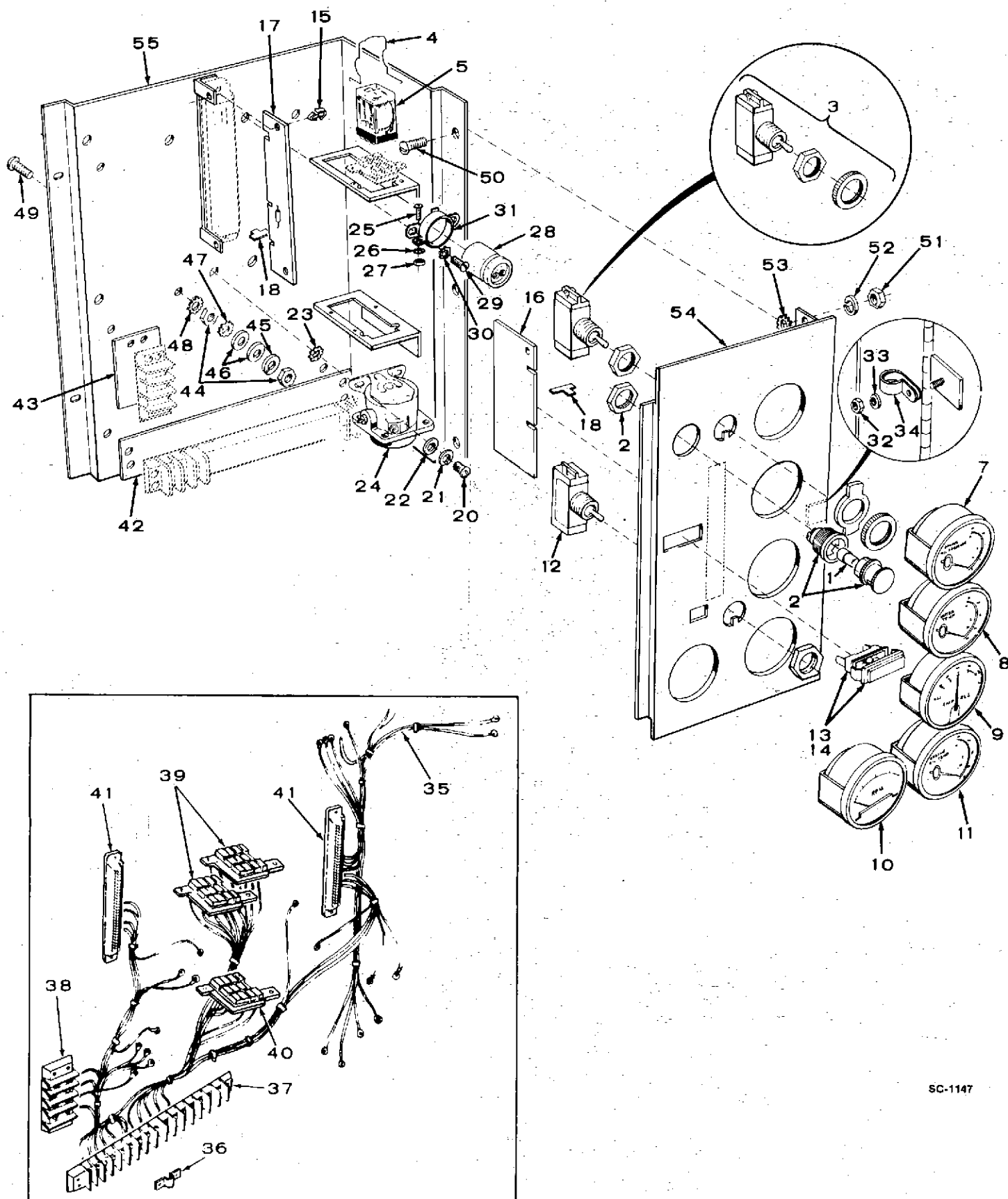
M-1180

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	821-0010	8	Screw, Self-locking - Hex Washer Head (1/4-20 x 1/2")
2	234-0370	1	Grill, Air - Generator Inlet
3	815-0350	18	Screw, Tapping - Hex Washer Head (#10-32 x 3/8")
4	301-3156	3	Panel, Access
5	821-0010	4	Screw, Self-locking - Hex Washer Head (1/4-20 x 1/2")
6	234-0361	1	Wrapper, End Bell
7	821-0018	6	Screw, Self-locking - Hex Washer Head (1/4-20 x 5/8")

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
8	856-0006	1	Washer, Lock - EIT (1/4")
9	526-0018	5	Washer, Flat (17/64" ID x 5/8" OD x 1/16" Thk)
10	870-0212	6	Nut, Hex (1/4-20)
11	301-3155	1	Housing, Control Box
12	508-0203	1	Bushing, Cable - Nylon
13	821-0010	1	Screw, Self-locking - Hex Washer Head (1/4-20 x 1/2")
14	821-0014	8	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")
15	301-3154	1	Saddle, Control Box

944-0222 (JULY 1981)

# ENGINE CONTROL WITH ONE FAULT LIGHT



SC-1147

# ENGINE CONTROL WITH ONE FAULT LIGHT

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	322-0004	1	Lamp Incandescent (12 VDC)
2	322-0149	1	Lampholder
3	308-0002	1	Switch, Toggle (SPST)
4	307-1157	3	Spring, Holddown - Relay
5	RELAY (12 VDC)		
	307-1058	1	(Ignition)
	307-1058	1	(Start Disconnect)
	307-1061	1	(Starter Protection)
7	193-0243	1	Gauge - Oil Pressure (12 VDC)
8	193-0245	1	Gauge - Water Temperature (12 VDC)
9	302-0061	1	Ammeter
10	302-0749	1	£Tachometer - Electrical
11	193-0248	1	£Gauge - Oil Temperature (12 VDC)
12	SWITCH, TOGGLE - SELECTOR		
	308-0138	1	Standard & Cycle Cranking Controls
	309-0327	1	Penn State Controls
13	*LIGHT, INDICATOR (Lens Color & Legend Listed Below)		
	322-0128	1	Red - Fault - 14 VDC
14	322-0136	1	*Light, Indicator - 14 VDC (Red Lens - No Legend)
15	518-0374	4	Fastener, Snap-In (Printed Circuit Boards)
16	PRINTED CIRCUIT BOARD ASSEMBLY (See Separate Parts Catalog #900-0234 for Components)		
	300-0733	1	Standard Cranker (12 VDC)
	300-0714	1	Cycle Cranker (12 VDC)
17	PRINTED CIRCUIT BOARD ASSEMBLY (See Separate Parts Catalog #900-0234 for Components)		
	300-0679	1	Engine Control Monitor - Standard
	300-0730	1	Engine Control Monitor - Penn State
18	332-1276	4	Plug, Keying - PC Board
20	813-0098	2	Screw, Machine - Round Head (#10-32 x 3/8")
21	850-0030	2	Washer, Lock - Spring (#10)
22	526-0009	2	Washer, Flat (7/32" ID x 1/2" OD x 1/16" Thk)
23	856-0003	2	Washer, Lock - EIT (#10)
24	307-1031	1	Relay, Solenoid - Start (12 VDC)
25	812-0061	1	Screw, Machine - Round Head (#6-32 x 3/8")

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
26	860-0006	1	Nut, Hex (#6-32)
27	853-0003	1	Washer, Lock - ET (#6)
28	356-0072	1	Capacitor, Fixed Electrolytic (4000 MFD, 30 VDC)
29	812-0063	2	Screw, Machine - Round Head (#6-32 x 1/2")
30	853-0003	2	Washer, Lock - ET (#6)
31	356-0070	1	Clamp, Capacitor Mounting
32	870-0053	1	Nut, Hex (#10-32)
33	850-0030	1	Washer, Lock - Spring (#10)
34	332-0051	1	Clamp, Loop
35	HARNESS, WIRING - ENGINE CONTROL		
	338-1065	1	Includes parts marked †
	ATTACHING HARDWARE FOR WIRING HARNESS		
	812-0061	4	Screw, Machine - Round Head (#6-32 x 3/8")
	812-0066	6	Screw, Machine - Round Head (#6-32 x 3/4")
	853-0003	14	Washer, Lock - ET (#6)
	860-0006	10	Nut, Hex (#6-32)
36	332-1043	1	†Jumper, Terminal
37	332-0795	1	†Block, Terminal - 16 Place
38	332-0537	1	†Block, Terminal - 4 Place
39	323-0765	2	†Socket, Relay - 11 Place
40	323-0764	1	†Socket, Relay - 8 Place
41	332-1271	2	†Connector, Electrical - PC BD
42	332-1241	1	Strip, Marker - Terminal
43	332-1239	1	Strip, Marker - Terminal
	GROUND TERMINAL ASSEMBLY (Includes parts marked #)		
44	871-0010	2	#Nut, Hex - Brass (#10-32)
45	850-0030	1	#Washer, Lock - Spring (#10)
46	526-0205	2	#Washer, Flat - Brass (13/64" ID x 7/16" OD x 1/16" Thk)
47	853-0008	1	#Washer, Lock - ET (#10)
48	856-0003	1	#Washer, Lock - EIT (#10)
49	815-0203	1	#Screw, Machine - Round Head, Brass (#10-32 x 7/8")
50	815-0026	5	Screw, Machine - Truss Head (#10-32 x 3/8")
51	870-0053	1	Nut, Hex (#10-32)
52	850-0030	1	Washer, Lock - Spring (#10)
53	856-0003	1	Washer, Lock - EIT (#10)
54	PANEL, CONTROL - ENGINE		
	301-3165	1	With Three Gauge Mtg. Holes
	301-3286	1	With Four Gauge Mtg. Holes
	301-3396	1	With Five Gauge Mtg. Holes
55	301-3253	1	Bracket, Mounting Engine Control

\* - **NOTE:** For lamp replacement order 322-0136 remove and discard plain red lens, install lens with legend from burned out light — lights snap in and out of panel.

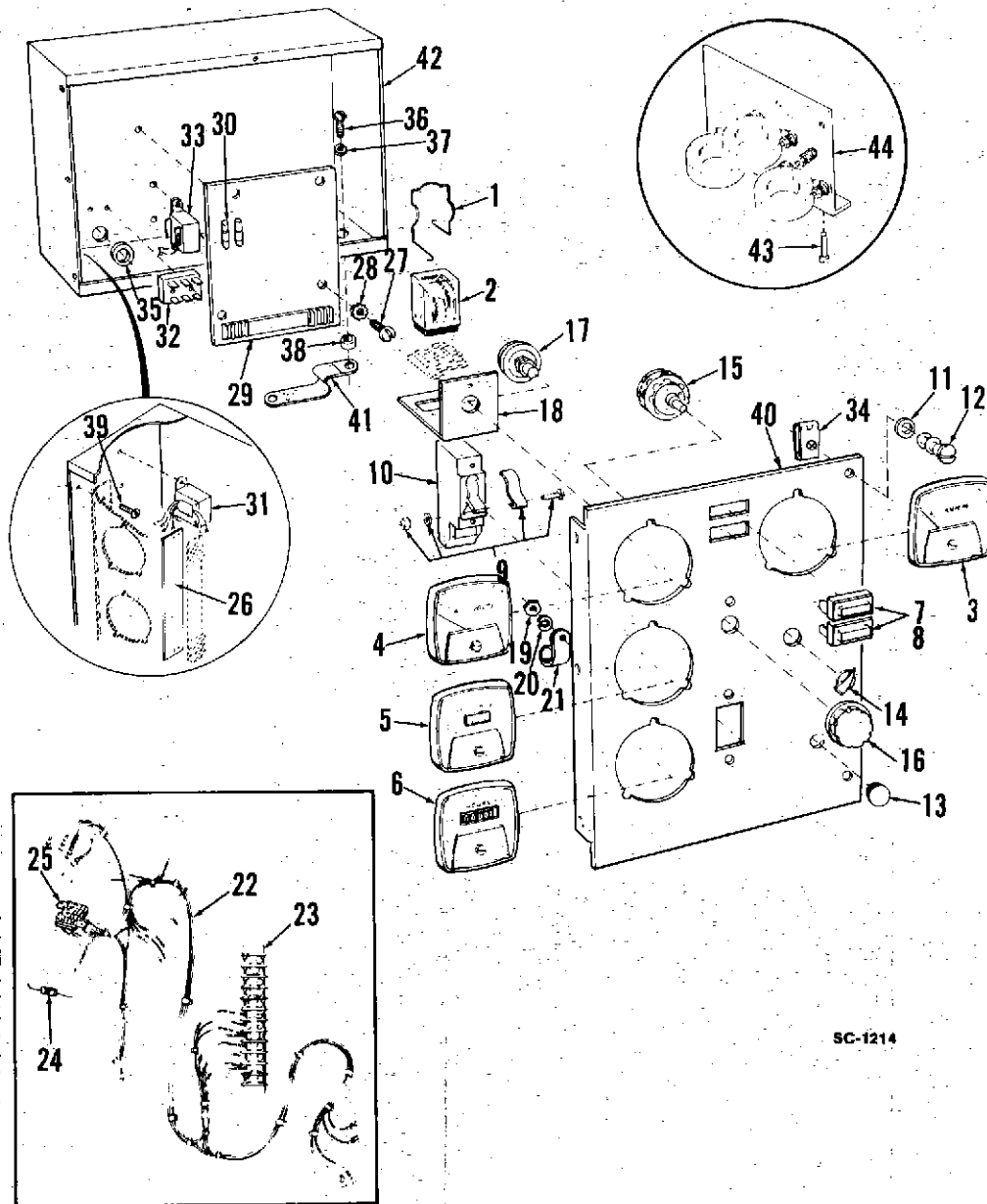
£ - Optional items used with Engine Mounted Senders.

† - Parts includes in Wiring Harness

# - Parts includes in Ground Terminal Assembly



# CONTROL - GENERATOR



SC-1214

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	307-1157	1	Spring, Holddown, Relay - Code 15R, 515R	4	VOLTMETER (Select as Required)		
2	307-1061	1	Relay Code 15R, 515R		302-0421	1	SINGLE SCALE
3	AMMETER (Select as Required)				302-0422	1	0-300 Volt
	302-0406	1	0-50 Amp		302-0612	1	0-600 Volt
	302-0408	1	0-75 Amp		302-0779	1	0-500 Volt
	302-0410	1	0-100 Amp				0-750 Volt
	302-0411	1	0-200 Amp		302-0718	1	DUAL SCALE
	302-0412	1	0-250 Amp				0-300, 0-600 Volt
	302-0413	1	0-300 Amp	5	METER, FREQUENCY (Select as Required)		
	302-0605	1	0-400 Amp				REED TYPE
			DUAL SCALE		302-0213	1	115 VAC, 60 Hz
	302-0719	1	0-75, 0-150 Amp		302-0221	1	230 VAC, 60 Hz
	302-0720	1	0-100, 0-200 Amp		302-0234	1	115 VAC, 50 Hz
	302-0721	1	0-150, 0-300 Amp		302-0256	1	230 VAC, 50 Hz
	302-0722	1	0-200, 0-400 Amp				POINTER TYPE
	302-0723	1	0-250, 0-500 Amp		302-0809	1	120 VAC, 60 Hz
	302-0724	1	0-375, 0-750 Amp		302-0810	1	208 VAC, 60 Hz
					302-0811	1	240 VAC, 60 Hz

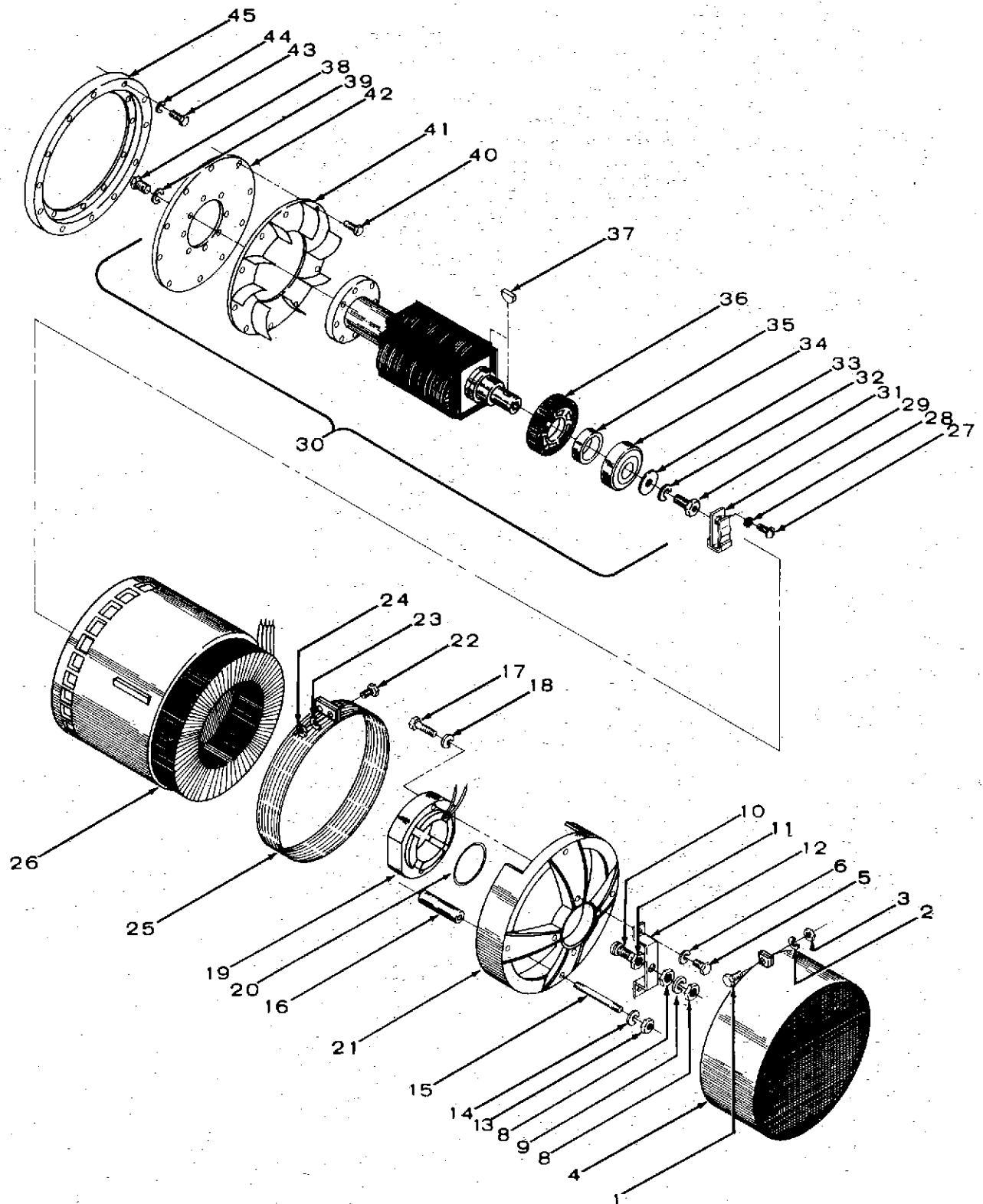
## CONTROL - GENERATOR

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
6	METER, TIME TOTALIZING (Select as Required)			26	STRIP, MARKER (Select as Required)		
	302-0466	1	60 Hz		332-1242	1	16 Place
	302-0469	1	50 Hz		332-1248	1	12 Place
7	*LIGHT, INDICATOR - 125 VAC (Lens Color & Legend Listed Below)			27	812-0065	4	Screw, Machine - Round Head (#6-32 x 5/8")
	322-0130	1	Red - Lower Scale	28	853-0003	4	Washer, Lock - ET (#6)
	322-0131	1	Red - Upper Scale	29	332-1956	1	Regulator, Voltage
8	322-0178	1	*Light, Indicator - 125 VAC (Amber Len - No Legend)	30	321-0204	2	Fuse, Cartridge (1/4 Amp)
9	320-0307	1	Lock - Circuit Breaker Handle (Penn State Sets)	31	315-0431	1	Transformer, Voltage
	ATTACHING HARDWARE FOR LOCK				ATTACHING PARTS FOR TRANSFORMER		
	815-0203	1	Screw, Machine - Round Head (#10-32 x 7/8")		812-0061	2	Screw, Machine - Round Head (#6-32 x 3/8")
	854-0010	1	Washer, Lock - IT (#10)		853-0003	2	Washer, Lock - ET (#6)
	871-0010	1	Nut, Hex (#10-32)	32	305-0675	1	Rectifier Bridge
10	320-0431	1	Circuit Breaker		ATTACHING PARTS FOR RECTIFIER		
	ATTACHING HARDWARE FOR CIRCUIT BREAKER				812-0070	2	Screw, Machine - Round Head (#6-32 x 1-1/4")
	812-0061	2	Screw, Machine - Round Head (#6-32 x 3/8")		850-0020	2	Washer, Lock - Spring (#6)
	850-0020	2	Washer, Lock - Spring (#6)	33	315-0384	1	Reactor
	815-0203	1	Screw, Machine - Round Head, Brass (#10-32 x 7/8")		ATTACHING PARTS FOR REACTOR		
	871-0010	1	Nut, Hex - Brass (#10-32)		812-0061	2	Screw, Machine - Round Head (#6-32 x 3/8")
	853-0008	1	Washer, Lock - ET (#10)		853-0003	2	Washer, Lock - ET (#6)
	526-0049	1	Washer, Flat - Brass (13/64" ID x 7/16" OD x 1/32" Thk)	34	406-0332	2	Receptacle, Turnbutton Fastener
11	406-0334	2	Clip, Retaining - Turnbutton Fastener	35	508-0001	4	Grommet, Rubber
12	406-0333	2	Stud, Turnbutton Fastener	36	800-0045	4	Screw, Cap - Hex Head (5/16-18 x 3/8")
13	517-0131	1	Plug, Plastic	37	850-0045	4	Washer, Lock - Spring (5/16")
14	303-0076	1	Knob, Pointer	38	402-0070	4	Dampener, Vibration
15	308-0284	1	Switch, Selector	39	815-0026	3	Screw, Machine - Truss Head (#10-32 x 3/8")
16	303-0032	1	Knob	40	PANEL, CONTROL		Sets Without Meter Panel
17	303-0170	1	Rheostat (35K Ohms, 25 Watt)		301-3822	1	Code 3R
18	301-3244	1	Bracket, Mounting, Relay - Code 15R, 15R50, 515R		301-3821	1	Code 9XR, 6DR, 7R
19	870-0053	1	Nut, Hex (#10-32)		301-3274	1	Code 15R, 515R
20	850-0030	1	Washer, Lock - Spring (#10)				Sets With Meter Panel
21	332-0051	1	Clamp, Loop		301-3169	1	Code 3R
22	HARNESS WIRING - GENERATOR CONTROL				301-3342	1	Code 9XR, 6DR, 7R
			Sets Without Meter Panel		301-3170	1	Code 15R, 515R
	338-0765	1	Code 3R	41	337-0049	1	Strap, Ground
	338-0764	1	Code 15R, 515R		ATTACHING PARTS FOR STRAP		
	338-0766	1	Code 9XR, 6DR, 7R		800-0046	1	Screw, Cap - Hex Head (5/16-18 x 3/8")
			Sets With Meter Panel		850-0045	1	Washer, Lock - Spring (5/16")
	338-0735	1	Code 3R		856-0008	2	Washer, Lock - EIT (5/16")
	338-0730	1	Code 15R, 515R		862-0015	1	Nut, Hex (5/16-18)
	338-0759	1	Code 9XR, 6DR, 7R	42	301-3158	1	Box, Control
	ATTACHING HARDWARE FOR WIRING HARNESS			43	821-0010	2	Screw, Self-locking - Hex Washer Head (1/4-20 x 1/2")
	812-0061	2	Screw, Machine - Round Head (#6-32 x 3/8")	44	CURRENT TRANSFORMER ASSEMBLY (See Separate Figure For Parts) - <b>NOTE:</b> Assembly is Located Behind the Control Box.		
	812-0066	2	Screw, Machine - Round Head (#6-32 x 3/4")				
	850-0020	2	Washer, Lock - Spring (#6)				
	853-0003	4	Washer, Lock - ET (#6)				
	860-0006	2	Nut, Hex (#6-32)				
23	BLOCK, TERMINAL (Select as Required)						
	332-0607	1	12 places				
	332-0795	1	16 places				
24	350-0556	1	Resistor, Fixed Composition (47K Ohms, 1/2 Watt) - Code 15R, 515R				
25	323-0765	1	Socket, Relay - 11 Place - Code 15R, 515R				

£ - See Separate Parts Catalog #900-0234 for Components.

\* - **NOTE:** For lamp replacement order 322-0178 remove and discard plain red lens, install lens with legend from burned out light —lights snap in and out of panel.

# GENERATOR ASSEMBLY



XES1174

# GENERATOR ASSEMBLY

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	800-0008	1	Screw, Cap - Hex Head (1/4-20 x 1-1/4")
2	850-0040	1	Washer, Lock - Spring (1/4")
3	862-0001	1	Nut, Hex (1/4-20)
4	234-0369	1	Cover, End Bell (Used on Housed Sets Only)
5	800-0003	2	Screw, Cap - Hex Head (1/4-20 x 1/2")
6	850-0040	2	Washer, Lock - Spring (1/4")
7	150-1456	1	Contact Assembly - Overspeed Switch (Includes Parts Marked †)
8	862-0001	2	†Nut, Hex (1/4-20)
9	853-0013	1	†Washer, Lock - ET (1/4")
10	150-0723	1	†Contact, Electrical
11	870-0250	1	†Nut, Insulated
12	150-1356	1	†Bracket, Mounting - Contact
13	862-0011	4	Nut, Hex - Grade 8 (3/8-16)
14	850-0050	4	Washer, Lock - Spring (3/8")
15	STUD (Select as Required)		
	520-0718	4	3/8-16 UNC x 14-11/16" Lg
	520-0721	4	3/8-16 UNC x 16-11/32" Lg
16	503-0611	4	Hose, Rubber
17	800-0009	4	Screw, Cap - Hex Head (1/4-20 x 1-1/2")
18	850-0040	4	Washer, Lock - Spring (1/4")
19	STATOR, EXCITER (Select as Required)		
	220-2353	1	Standard
	220-1774	1	£Environmental Protected
20	509-0125	1	Seal, Oil - "O" Ring
21	211-0185	1	End Bell, Generator
22	800-0008	2	Screw, Cap - Hex Head (1/4-20 x 1-1/4")
23	850-0040	2	Washer, Lock - Spring (1/4")
24	862-0001	2	Nut, Hex (1/4-20)
25	234-0368	1	Screen, Air - Generator
26	STATOR ASSEMBLY, GENERATOR		
			50 HERTZ SETS
	220-1994	1	25 kw, Code 515
	220-1997	1	‡25 kW, Code 515, (Extended Stack)
			60 HERTZ SETS
	220-1552	1	30 kw, Code 3
	220-1845	1	£30 kW, Code 3, (Environmental Protected)
	220-2621	1	30 kw, Code 6D
	220-2459	1	30 kw, Code 7
	220-1599	1	30 kw, Code 9X
	220-1451	1	30 kw, Code 15
	220-1454	1	‡30 kW, Code 15 (Extended Stack)
	220-1783	1	£30 kW, Code 15 (Environmental Protected)
	220-1786	1	£‡30 kW, Code 15 (Extended Stack and Environmental Protected)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
27	812-0189	1	Screw, Machine - Round Head (3/8-16 x 3/4")
28	856-0010	1	Washer, Lock - EIT (3/8")
29	150-0717	1	Switch, Overspeed
30	ROTOR ASSEMBLY, GENERATOR (Includes Parts Marked *)		
			50 Hertz
	201-2666	1	25 kw, Code 515
	201-2669	1	‡25 kW, Code 515 (Extended Stack)
			60 Hertz
	201-2669	1	30 kw, Code 3
	201-2687	1	£30 kW, Code 3 (Environmental Protected)
	201-2666	1	30 kW, Code 6D, 9X, 15
	201-2668	1	30 kW, Code 7
	201-2669	1	‡30 kW, Code 15 (Extended Stack)
	201-2684	1	£30 kW, Code 15 (Environmental Protected)
	201-2687	1	£‡30 kW, Code 15 (Extended Stack and Environmental Protected)
31	800-0513	1	*Screw, Cap - Hex Head, Modified with 3/8-16 Tapped Center Hole (3/4-10 x 1-1/2")
32	850-0079	1	*Washer, Lock - Spring (3/4")
33	526-0238	1	*Washer, Flat - Steel Alloy (3/16" ID x 2" OD x 3/16" Thk)
34	510-0101	1	*Bearing, Ball
35	232-2102	1	*Spacer, Sleeve
36	*ROTOR ASSEMBLY, EXCITER (See Separate Group for Components)		
	201-1739	1	Standard
	201-1845	1	£Environmental Protected
37	515-0145	1	*Key, Machine (1/4" x 1/4" x 7/8")
38	*BOLT, PLACE — HEX HEAD, GRADE 8 (Select as Required)		
	805-0033	8	5/8-11 x 1"
	805-0035	8	5/8-11 x 1-1/2"
39	526-0259	8	*Washer, Flat - Hardened Steel (11/16" ID x 1-3/8" OD x 7/64" Thk)
40	*BOLT, PLACE — HEX HEAD, GRADE 8 (Select as Required)		
	805-0018	8	3/8-16 x 1"
	805-0019	8	3/8-16 x 1-1/4"
41	205-0089	1	*Fan, Generator
42	232-2078	1	*Disk, Drive - Generator
43	802-0072	12	Screw, Cap — Socket Head (3/8-16 x 1")
44	850-0050	12	Washer, Lock - Spring (3/8")
45	231-0188	1	Adaptor, Generator

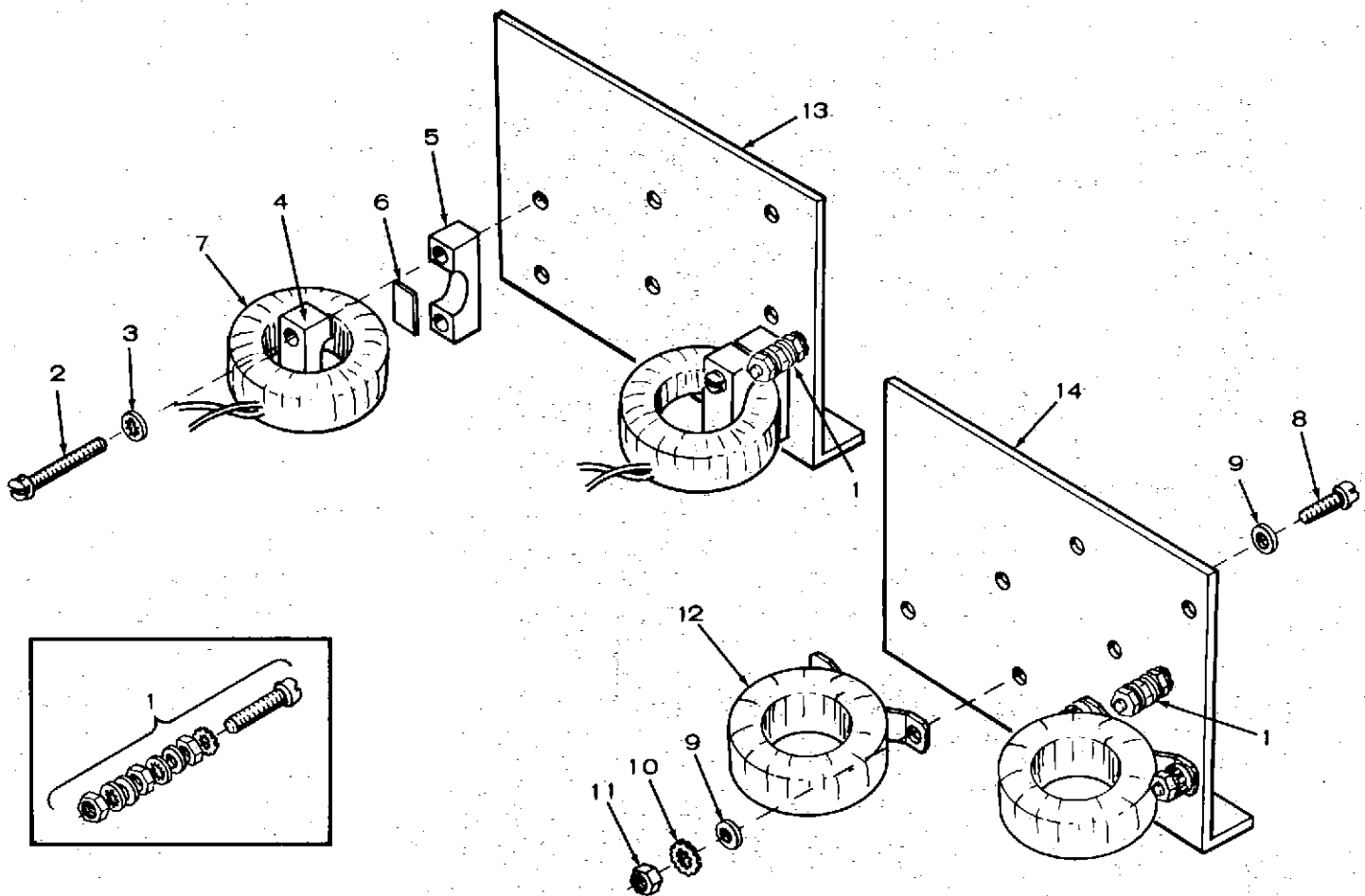
† - Parts included in Overspeed switch assembly

\* - Parts included in Generator Rotor Assembly

‡ - Extended Stack type assemblies that are used on sets having full power output on both single and three phase hookups. Both phases carry same KW and KVA ratings.

£ - Environmental protected assemblies or parts which are coated with epoxy and are for use in high humidity areas.

# CURRENT TRANSFORMER ASSEMBLY

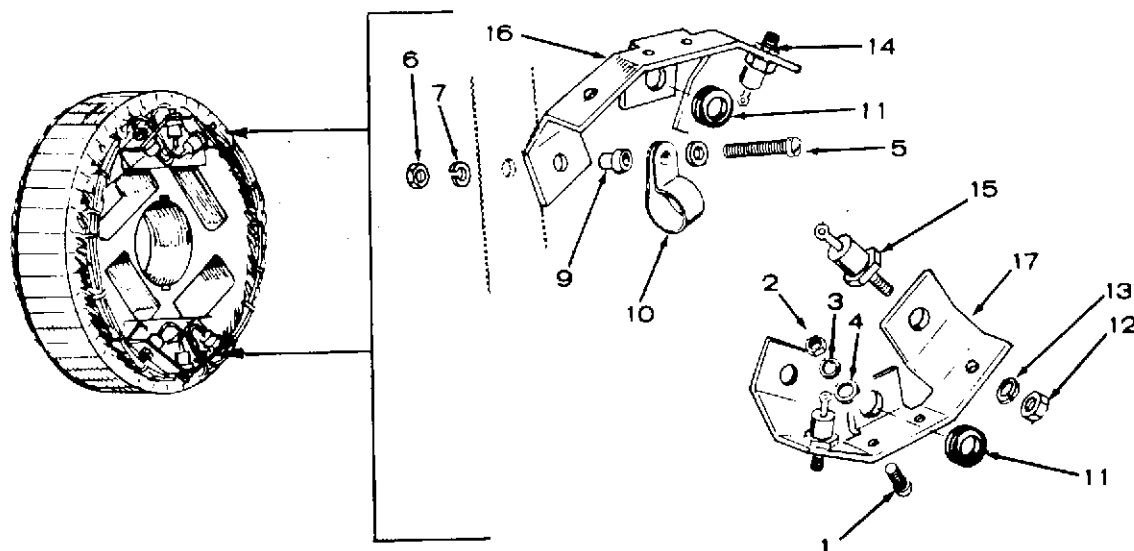


SC-1150

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	CURRENT TRANSFORMER ASSEMBLY (Select Components as Required)		
1	GROUND TERMINAL ASSEMBLY (Includes Following Items)		
	815-0203	1	Screw, Machine - Round Head, Brass (#10-32 x 7/8")
	871-0010	3	Nut, Hex - Brass (#10-32)
	856-0003	1	Washer, Lock - EIT (#10)
	854-0010	2	Washer, Lock - IT (#10)
	526-0049	2	Washer, Flat - Brass (13/64" ID x 7/32" OD x 1/32" Thk)
2	813-0110	6	Screw, Machine - Round Head (#10-32 x 2")
3	854-0010	6	Washer, Lock - IT (#10)
4	302-0235	3	Clamp, Upper
5	302-0236	3	Clamp, Lower
6	302-0253	6	Shim

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
7	CURRENT TRANSFORMER (Select Size as Required)		
	302-0117	3	Ratio 50/5, 3 VA
	302-0076	3	Ratio 75/5, 2 VA
	302-0078	3	Ratio 100/5, 2 VA
	302-0079	3	Ratio 150/5, 1 VA
	302-0106	3	Ratio 200/5, 1 VA
	302-0209	3	Ratio 230/5, 1 VA
	302-0107	3	Ratio 300/5, 1 VA
8	813-0100	6	Screw, Machine - Round Head (#10-32 x 1/2")
9	526-0008	6	Washer, Flat (13/64" ID x 7/16" OD x 1/32" Thk)
10	856-0003	6	Washer, Lock - EIT (#10)
11	870-0053	6	Nut, Hex (#10-32)
12	CURRENT TRANSFORMER (Select Size as Required)		
	302-0952	3	Ratio 75/5, 2 VA
	302-0864	3	Ratio 150/5, 2 VA
	302-0865	3	Ratio 200/5, 2 VA
	302-0866	3	Ratio 250/5, 2 VA
	302-0608	3	Ratio 400/5, 2 VA
	302-0547	3	Ratio 500/5, 2 VA
	302-0471	3	Ratio 750/5, 2 VA
13	302-0729	1	Bracket, Mounting - Transformer
14	302-0764	1	Bracket, Mounting - Transformer

## EXCITER ROTOR

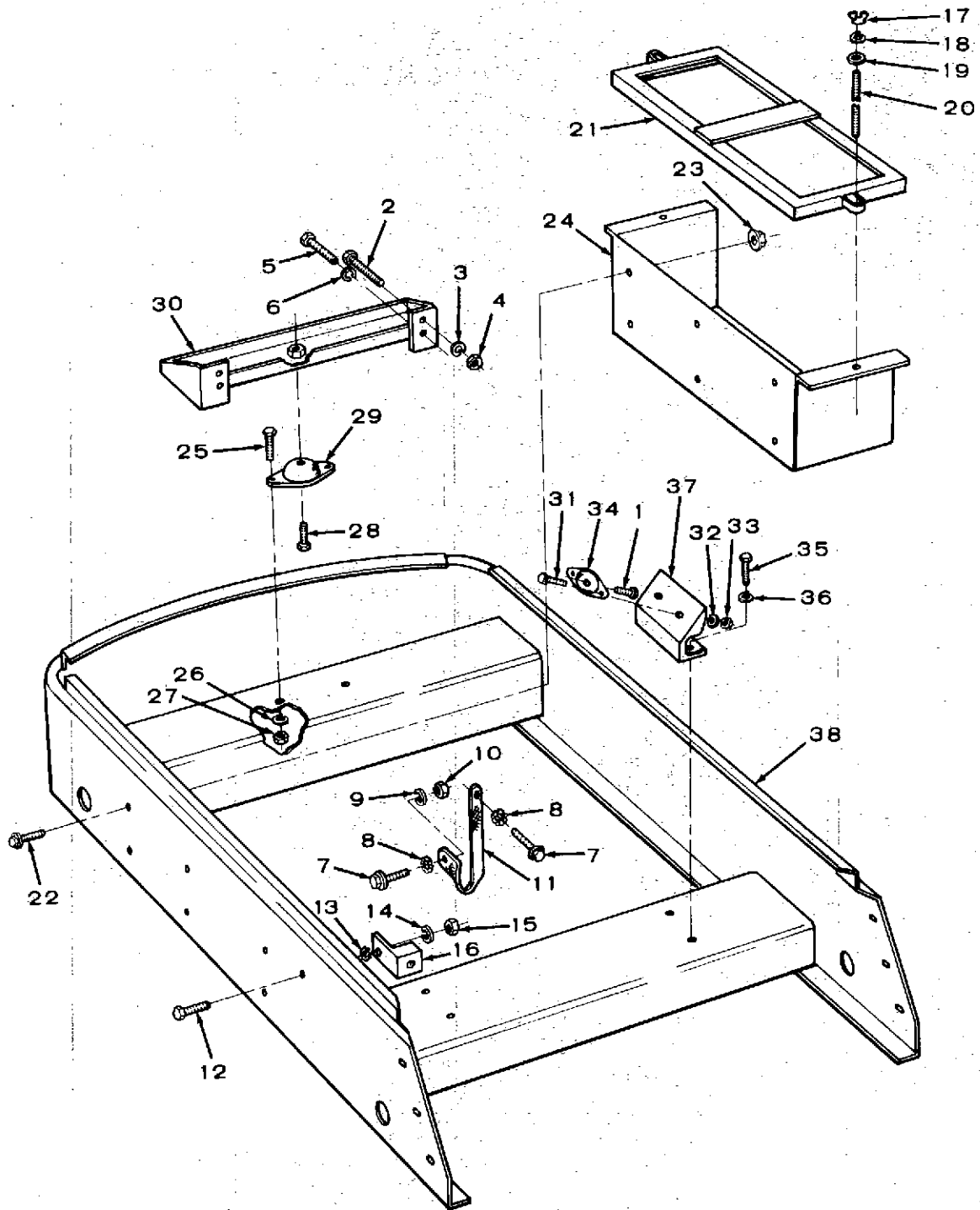


G-1030

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	ROTOR ASSEMBLY, EXCITER (Includes Parts Marked *)		
	201-1739	1	Standard
	201-1845	1	Environmental Protected (Expoxyed)
1	813-0100	2	Screw, Machine - Round Head (#10-32 x 1/2")
2	870-0053	2	Nut, Hex (#10-32)
3	850-0030	2	Washer, Lock - Spring (#10)
4	526-0008	2	Washer, Flat (13/64" ID x 7/16" OD x 1/32" Thk)
5	813-0110	4	*Screw, Machine - Round Head (#10-32 x 2")
6	870-0053	4	*Nut, Hex (#10-32)
7	850-0030	4	*Washer, Lock - Spring (#10)
8	526-0009	4	*Washer, Flat (7/32" ID x 1/2" OD x 1/16" Thk)
9	508-0187	4	*Spacer, Stepped
10	332-0050	2	*Clamp, Loop
11	508-0093	2	*Grommet, Rubber
12	870-0053	6	*Nut, Hex (#10-32)
13	850-0030	6	*Washer, Lock - Spring (#10)
14	*DIODE, RECTIFIER - POSITIVE (CR1, CR2, CR3)		
	358-0016	3	Standard
	358-0044	3	Environmental Protected (Expoxyed)
15	*DIODE, RECTIFIER - NEGATIVE (CR4, CR5, CR6)		
	358-0015	3	Standard
	358-0043	3	Environmental Protected (Expoxyed)
16	363-0054	1	*Heat, Sink - Positive Diodes
17	363-0055	1	*Heat, Sink - Negative Diodes

\* - Parts included in Exciter Rotor Assembly

## CHASSIS



XM-1223



## CHASSIS

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	800-0520	2	Screw, Cap - Hex Head (3/4-10 x 1")	20	520-0663	2	Stud (5/16-18 x 5/16-18 x 3-1/4" Lg)
2	800-0095	2	Screw, Cap - Hex Head (1/2-13 x 2-1/4")	21	416-0480	1	Frame, Holddown - Battery
3	850-0060	2	Washer, Lock - Spring (1/2")	22	821-0029	6	Screw, Self-locking - Hex Washer Head (3/8-16 x 3/4")
4	862-0016	2	Nut, Hex (1/2-13)	23	870-0281	6	Nut, Self-locking, Hex Washer Head (3/8-16)
5	800-0132	2	Screw, Cap - Hex Head (5/8-11 x 1-1/2")	24	416-0666	1	Tray - Battery
6	850-0050	2	Washer, Lock - Spring (5/8")	25	800-0090	2	Screw, Cap - Hex Head (1/2-13 x 1")
7	800-0091	2	Screw, Cap - Hex Head (1/2-13 x 1-1/4")	26	850-0060	2	Washer, Lock - Spring (1/2")
8	856-0013	2	Washer, Lock - External/Internal Tooth (1/2")	27	862-0016	2	Nut, Hex (1/2-13)
9	850-0060	1	Washer, Lock - Spring (1/2")	28	800-0520	1	Screw, Cap - Hex Head (3/4-10 x 1")
10	862-0016	1	Nut, Hex (1/2-13)	29	402-0371	1	Mount, Vibration - Engine
11	337-0090	1	Strap, Electrical	30	403-1110	1	Support, Mounting - Engine
12	800-0028	1	Screw, Cap - Hex Head (5/16-18 x 1")	31	800-0071	4	Screw, Cap - Hex Head (7/16-14 x 1")
13	856-0008	1	Washer, Lock - External/Internal Tooth (5/16")	32	850-0055	4	Washer, Lock - Spring (7/16")
14	850-0045	1	Washer, Lock - Spring (5/16")	33	862-0004	4	Nut, Hex (7/16-14)
15	862-0015	1	Nut, Hex (5/16-18)	34	402-0030	2	Mount, Vibration - Generator
16	332-1473	1	Terminal, Lug	35	800-0091	4	Screw, Cap - Hex Head (1/2-13 x 1-1/4")
17	865-0007	2	Nut, Wing (5/16-18)	36	850-0060	4	Washer, Lock - Spring (1/2")
18	850-0045	2	Washer, Lock - Spring (5/16")	37	232-2106	2	Bracket, Mounting - Generator
19	526-0115	2	Washer, Flat (11/32" ID x 11/16" OD x 1/16" Thk)	38	403-1111	1	Chassis



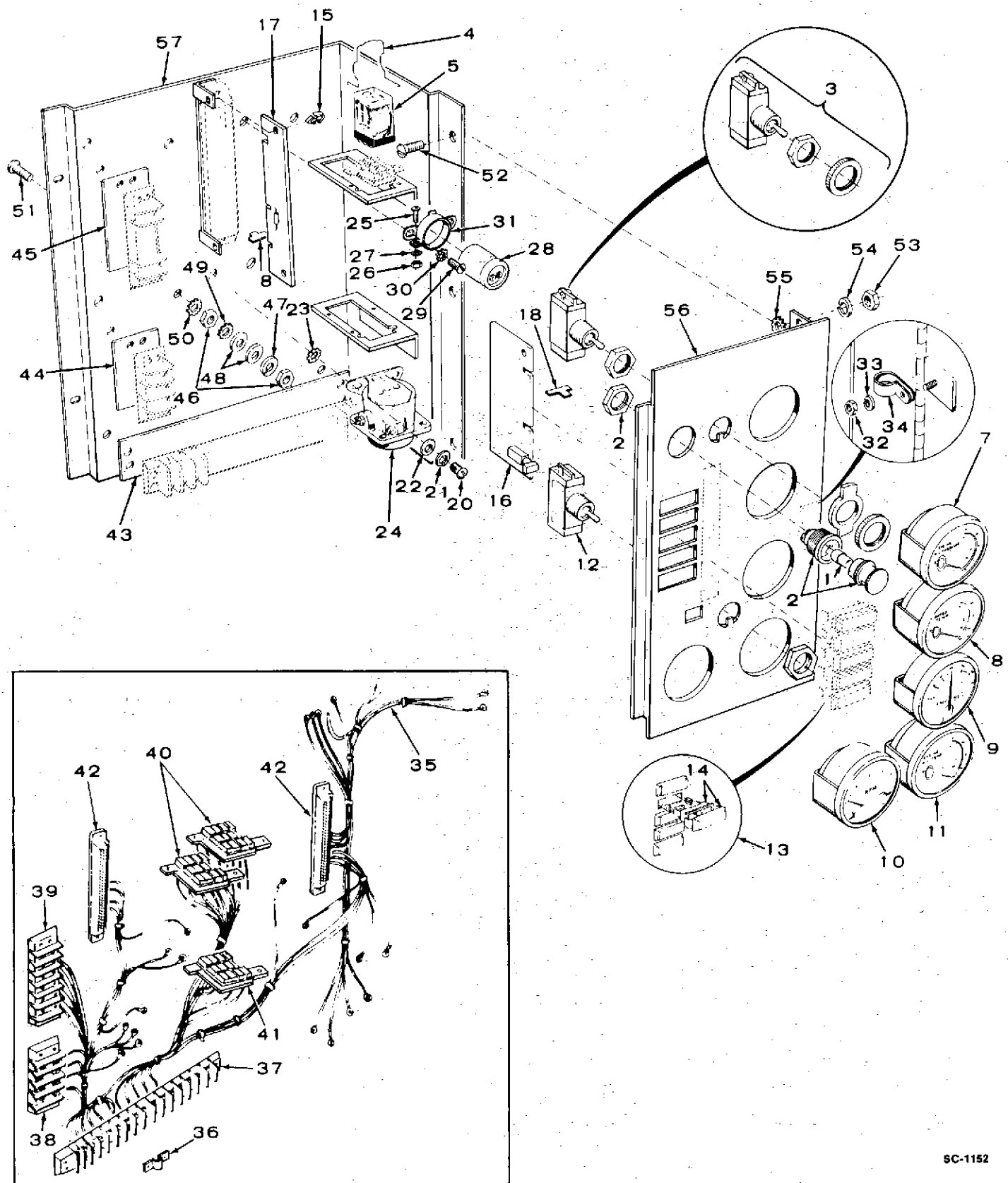


## **OPTIONAL EQUIPMENT SECTION**

This section contains parts listing of factory installed options.  
NOTE: options may not be applicable to all models; for field installations, additional parts are usually required.

# OPTIONAL ENGINE CONTROL WITH FIVE FAULT LIGHTS

H296



SC-1152

## OPTIONAL ENGINE CONTROL WITH FIVE FAULT LIGHTS

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	322-0004	1	Lamp Incandescent (12 VDC)	26	860-0006	1	Nut, Hex (#6-32)
2	322-0149	1	Lampholder	27	853-0003	1	Washer, Lock - ET (#6)
3	308-0002	1	Switch, Toggle (SPST)	28	356-0072	1	Capacitor, Fixed Electrolytic (4000 MFD, 30 VDC)
4	307-1157	3	Spring, Holddown - Relay	29	812-0063	2	Screw, Machine - Round Head (#6-32 x 1/2")
5	RELAY (12 VDC)			30	853-0003	2	Washer, Lock - ET (#6)
	307-1058	1	(Ignition)	31	356-0070	1	Clamp, Capacitor Mounting
	307-1058	1	(Start Disconnect)	32	870-0053	1	Nut, Hex (#10-32)
	307-1061	1	(Starter Protection)	33	850-0030	1	Washer, Lock - Spring (#10)
7	193-0243	1	Gauge - Oil Pressure (12 VDC)	34	332-0051	1	Clamp, Loop
8	193-0245	1	Gauge - Water Temperature (12 VDC)	35	HARNESS, WIRING - ENGINE CONTROL		
9	302-0061	1	Ammeter	338-1066	1	Includes Parts Marked †	
10	302-0749	1	£Tachometer - Electrical	ATTACHING HARDWARE FOR WIRING HARNESS			
11	193-0248	1	£Gauge - Oil Temperature (12 VDC)	812-0063	6	Screw, Machine - Round Head (#6-32 x 1/2")	
12	SWITCH, TOGGLE - SELECTOR			812-0066	6	Screw, Machine - Round Head (#6-32 x 3/4")	
	308-0138	1	Standard & Cycle Cranking Controls	853-0003	14	Washer, Lock - ET (#6)	
	309-0327	1	Penn State Controls	860-0006	10	Nut, Hex (#6-32)	
13	*LIGHT, INDICATOR-14 VDC (Lens Color & Legend Listed Below)			36	332-1043	1	†Jumper, Terminal
	322-0107	1	Red - OVERCRANK	37	332-0795	1	†Block, Terminal - 20 Place
	322-0111	1	Red - OVERSPEED	38	332-0537	1	†Block, Terminal - 4 Place
	322-0108	1	Red - LO OIL PRESS	39	332-0699	1	†Block, Terminal - 6 Place
	322-0109	1	Red - HI ENG TEMP	40	323-0765	2	†Socket, Relay - 11 Place
	322-0110	2	Red - LO ENG TEMP	41	323-0764	2	†Socket, Relay - 8 Place
14	322-0136	1	*Light, Indicator - 14 VDC (Red Lens - No Legend)	42	332-1271	1	†Connector, Electrical - PC BD
15	518-0374	4	Fastener, Snap-In (Printed Circuit Boards)	43	332-1559	1	Strip, Marker - Terminal
16	PRINTED CIRCUIT BOARD ASSEMBLY (See Separate Parts Catalog #900-0234 for Components)			44	332-1239	1	Strip, Marker - Terminal
	300-0733	1	Standard Cranker (12 VDC)	45	332-1240	1	Strip, Marker - Terminal
	300-0714	1	Cycle Cranker (12 VDC)	GROUND TERMINAL ASSEMBLY (Includes Parts Marked #)			
17	PRINTED CIRCUIT BOARD ASSEMBLY (See Separate Parts Catalog #900-0234 for Components)			46	871-0010	2	#Nut, Hex - Brass (#10-32)
	300-0681	1	Engine Control Monitor - Standard	47	850-0030	1	#Washer, Lock - Spring (#10)
18	332-1276	4	Plug, Keying - PC Board	48	526-0205	2	#Washer, Flat - Brass (13/64" ID x 7/16" OD x 1/16" Thk)
20	813-0098	2	Screw, Machine - Round Head (#10-32 x 3/8")	49	853-0008	1	#Washer, Lock - ET (#10)
21	850-0030	2	Washer, Lock - Spring (#10)	50	856-0003	1	#Washer, Lock - EIT (#10)
22	526-0009	2	Washer, Flat (7/32" ID x 1/2" OD x 1/16" Thk)	51	815-0203	1	#Screw, Machine - Round Head, Brass (#10-32 x 7/8")
23	856-0003	2	Washer, Lock - EIT (#10)	52	815-0026	5	Screw, Machine - Truss Head (#10-32 x 3/8")
24	307-1031	1	Relay, Solenoid - Start (12 VDC)	53	870-0053	1	Nut, Hex (#10-32)
25	812-0061	1	Screw, Machine - Round Head (#6-32 x 3/8")	54	850-0030	1	Washer, Lock - Spring (#10)
				55	856-0003	1	Washer, Lock - EIT (#10)
				56	PANEL, CONTROL - ENGINE		
					301-3267	1	With Three Gauge Mtg. Holes
					301-3286	1	With Four Gauge Mtg. Holes
					301-3166	1	With Five Gauge Mtg. Holes
				57	301-3253	1	Bracket, Mounting Engine Control

\* - NOTE: For lamp replacement order 322-0136 remove and discard plain red lens, install lens with legend from burned out light — lights snap in and out of panel.

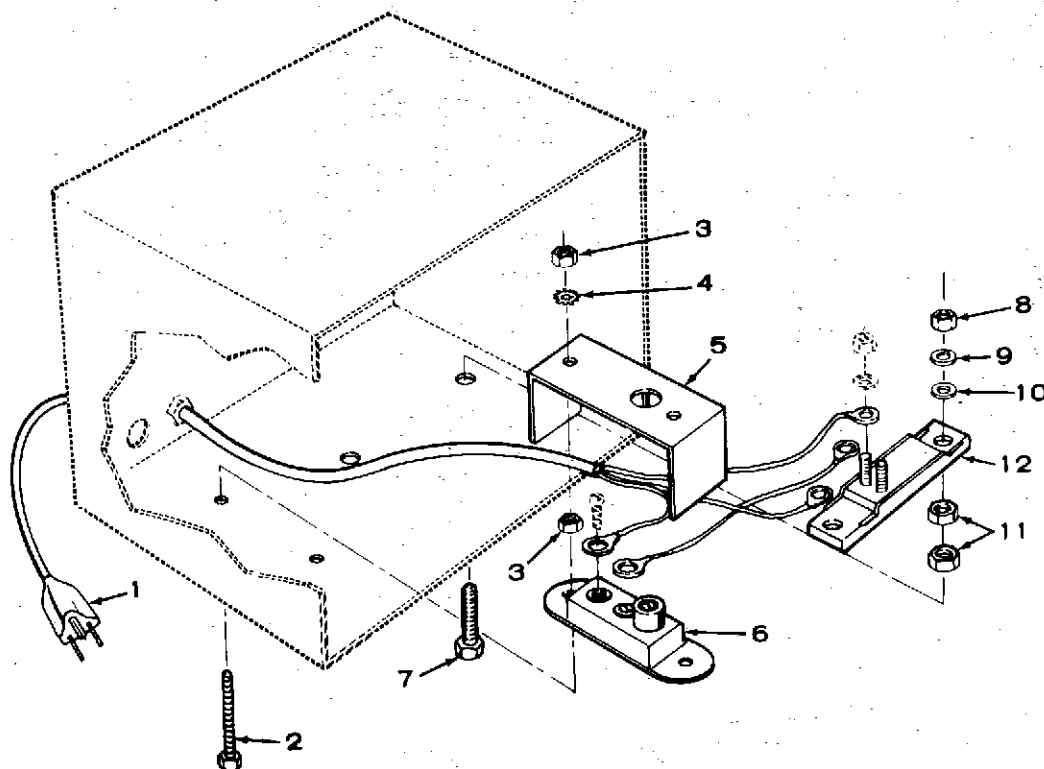
£ - Optional items used with Engine Mounted Senders.

† - Parts included in Wiring Harness

# - Parts included in Ground Terminal Assembly

# OPTIONAL CONTROL HEATER

A167



SC-1156

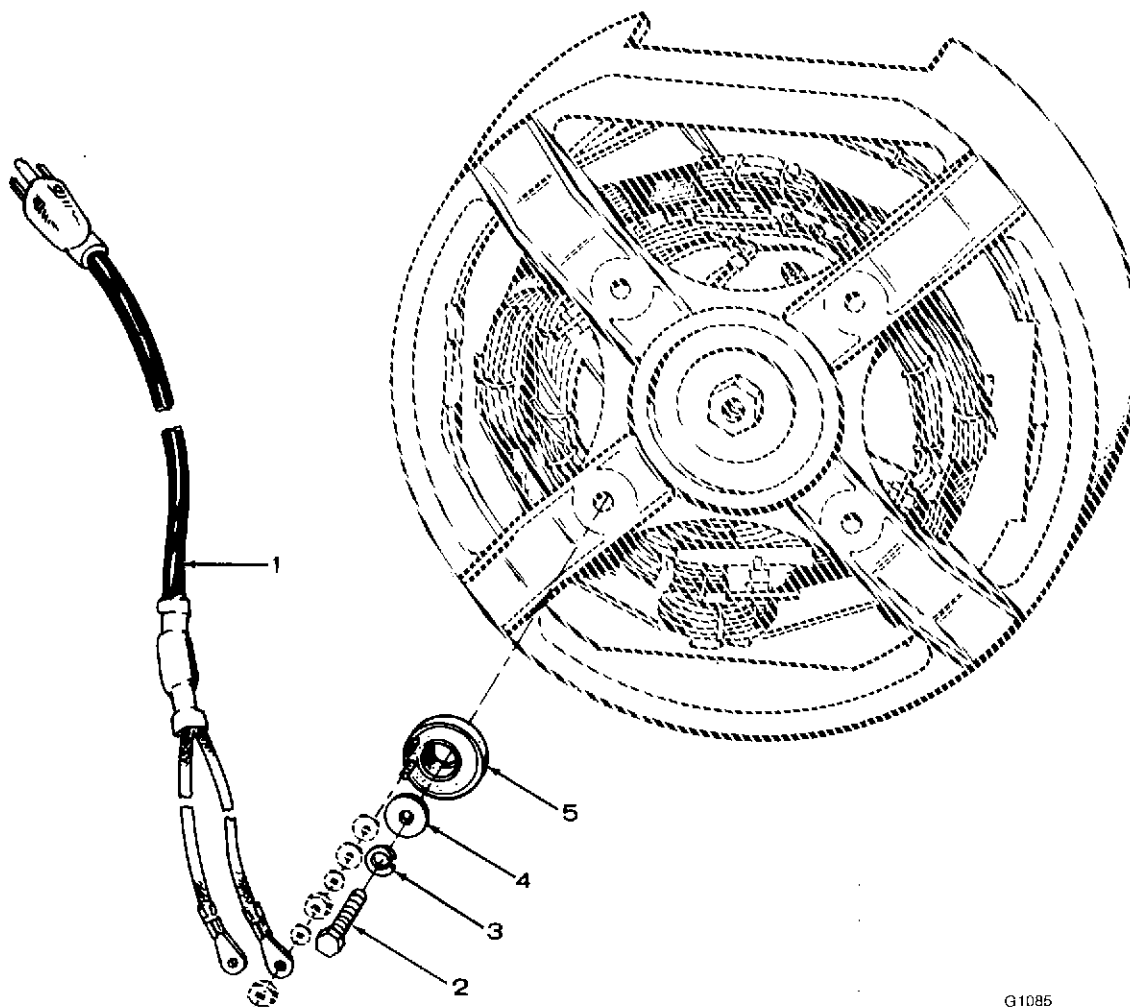
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	335-0110	1	Cable, Electrical (3 Wire)
2	812-0090	2	Screw, Machine - Round Head (#6-32 x 2-1/4")
3	860-0006	4	Nut, Hex (#6-32)
4	856-0001	2	Washer, Lock - EIT (#6)
5	301-1886	1	Cover, Thermostat
6	309-0128	1	Thermostat - Adjustable
7	800-0007	2	Screw, Cap - Hex Head (1/4-20 x 1")
8	862-0001	2	Nut, Hex (1/4-20)
9	850-0040	2	Washer, Lock - Spring (1/4)
10	526-0052	2	Washer, Flat (17/64" ID x 9/16" OD x 1/16" Thk)
11	862-0015	4	Nut, Hex (5/16-18) - Used As Spacers
12	333-0151	1	Heater - 75 Watt, 120 VAC; 300 Watt, 240 VAC

179-0369

179-2185

# OPTIONAL GENERATOR HEATER

A177



G1085

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	HEATER, GENERATOR		
	179-0369	1	120 Volt
	179-2185	1	240 Volt
1	CABLE ASSEMBLY (Includes Thermostat)		
	335-0146	1	120 Volt
	335-0147	1	240 Volt
2	800-0004	1	Screw, Cap - Hex Head (1/4-20 x 5/8")
3	850-0038	1	Washer, Lock - Spring (1/4")
4	526-0158	1	Washer, Flat (17/64" ID 1" OD x 1/8" Thk)
5	HEATER, ELECTRICAL		
	333-0059	1	120 Volt, 125 Watt
	333-0192	1	240 Volt, 200 Watt

625-1027

# OPTIONAL CIRCUIT BREAKER

K481

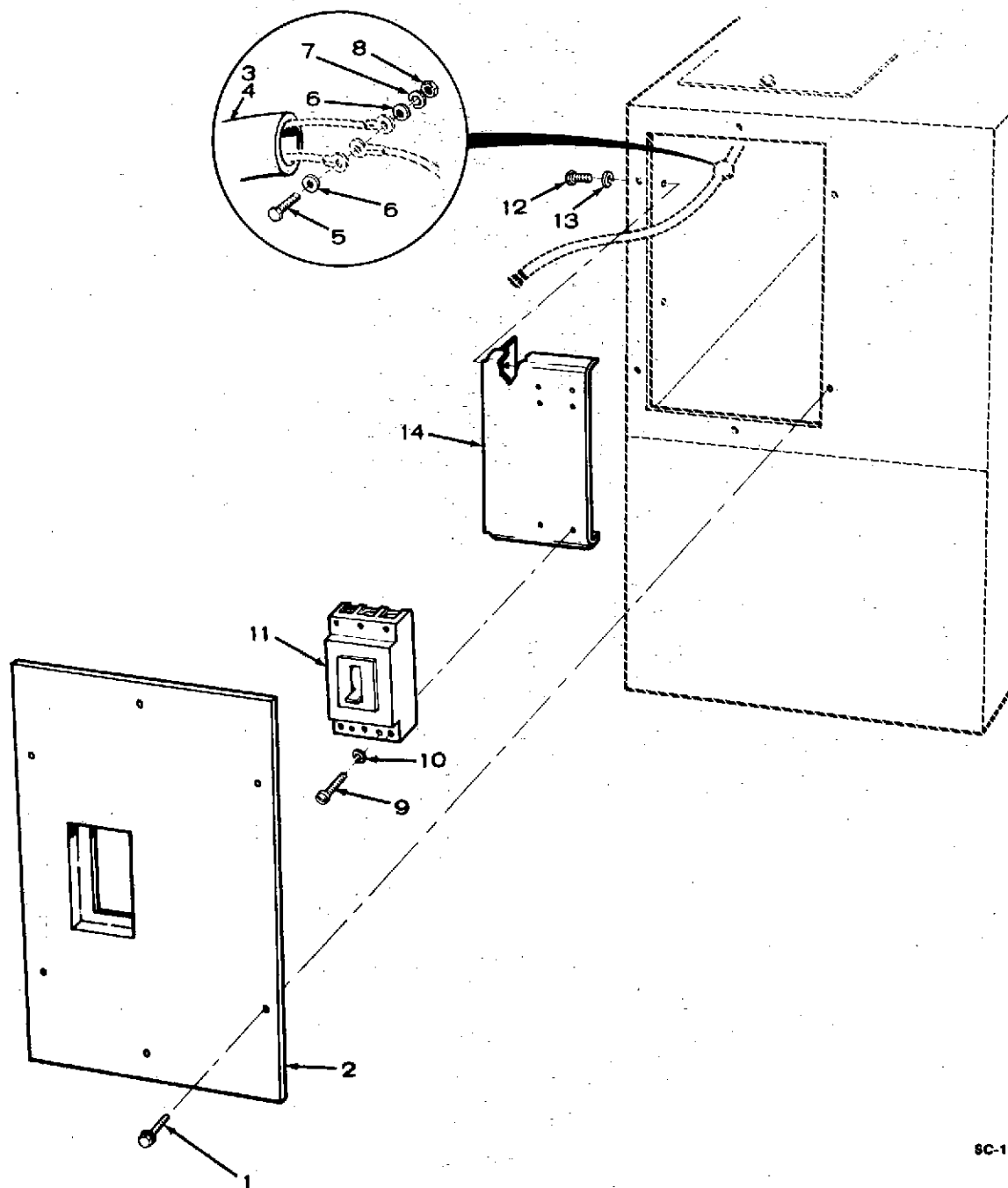
K482

K483

K484

K491

K492



6C-1125

C6

944-0222 (JULY 1981)

## OPTIONAL CIRCUIT BREAKER

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	
1	815-0350	6	Screw, Tapping - Hex Washer Head (#10-32 x 3/8)	11	CIRCUIT BREAKER (Select as Required)			
2	301-3192	1	Panel, Cover - Circuit Breaker	320-0344	1	175 AMP, 1 PH, 120/240 VAC		
3	SLEEVING, INSULATION - SHRINKABLE (Select as Required)			320-0346	1	150 AMP, 3 PH, 120/208 - 120/240 VAC		
	898-0863	3/4" ID		320-0347	1	175 AMP, 3 PH, 120/208 - 120/240 VAC		
	898-0865	1" ID		320-0348	1	200 AMP, 3 PH, 120/208 - 120/240 VAC		
	898-0875	1-1/2" ID		320-0349	1	225 AMP, 3 PH, 120/208 VAC		
	898-0869	2" ID		320-0359	1	225 AMP, 1 PH, 120/240 VAC		
4	SLEEVING, INSULATION — FIBERGLASS (Select as Required)			320-0379	1	90 AMP, 3 PH, 200/346 - 220/380 - 277/480 VAC		
	898-0974	3/4" ID		320-0380	1	100 AMP, 3 PH, 200/346 - 220/380 - 277/480 VAC		
	898-0976	1" ID		320-0384	1	60 AMP, 3 PH, 200/346 - 220/380 VAC		
5	800-0028	5	Screw, Cap - Hex Head (5/16-18 x 1")	320-0411	1	90 AMP, 3 PH, 120/240 VAC		
6	526-0022	10	Washer, Flat (21/64" ID x 9/16" OD x 1/16" Thk)	320-0412	1	100 AMP, 3 PH, 120/208 VAC		
7	850-0045	5	Washer, Lock - Spring (5/16")	320-0413	1	50 AMP, 3 PH, 277/480 VAC		
8	862-0015	5	Nut, Hex (5/16-18)	320-0414	1	70 AMP, 3 PH, 277/480 VAC		
9	812-0094	4	Screw, Machine - Round Head (#8-32 x 3-5/8")	320-0415	1	40 AMP, 3 PH, 347/600 VAC		
10	850-0025	4	Washer, Lock - Spring (#8)	320-0416	1	60 AMP, 3 PH, 347/600 VAC		
				320-0417	1	70 AMP, 3 PH, 347/600 VAC		
				320-0418	1	90 AMP, 3 PH, 347/600 VAC		
				320-0419	1	125 AMP, 3 PH, 200/346 - 220/380 VAC		
				320-0425	1	150 AMP, 3 PH, 200/346 VAC		
				320-0726	1	150 AMP, 3 PH, 120/208 - 120/240 VAC		
				320-0823	1	50 AMP, 3 PH, 277/480 VAC		
				12	800-0003	2	Screw, Cap - Hex Head (1/4-20 x 1/2")	
				13	850-0040	2	Washer, Lock - Spring (1/4")	
				14	301-3197	1	Bracket, Mounting - Circuit Breaker	



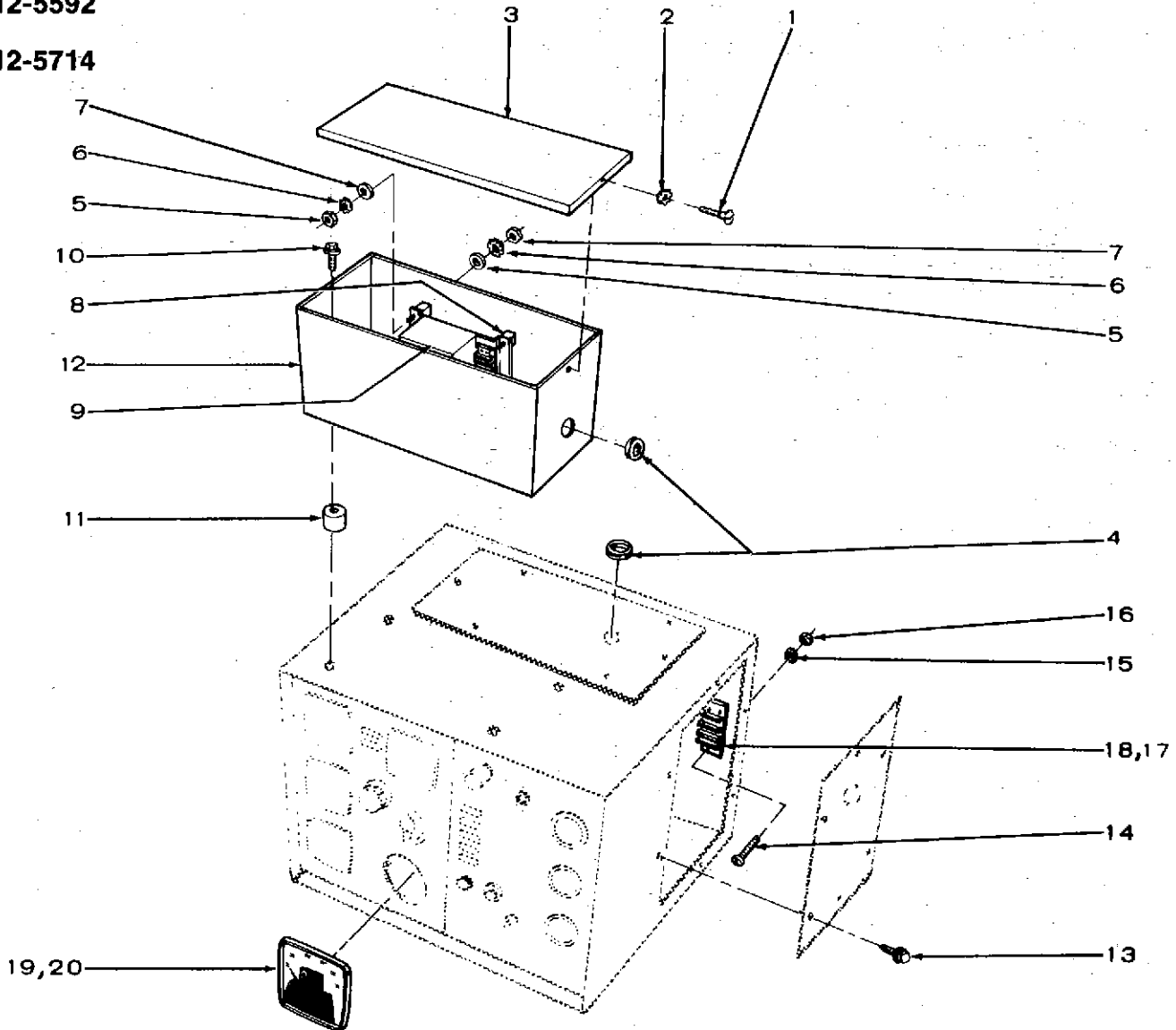
612-5344

612-5592

612-5714

## OPTIONAL WATTMETER

K185

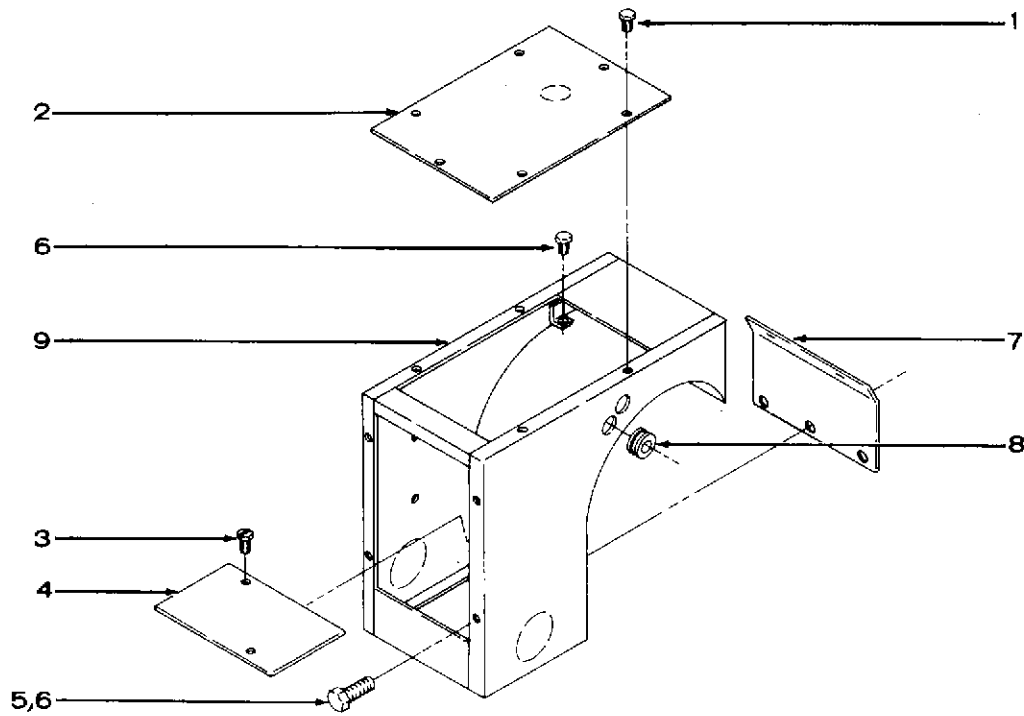


SC1157

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	815-0026	2	Screw, Machine - Truss Head (#10-32 x 3/8")
2	853-0008	2	Washer, Lock - External Tooth (#10)
3	301-3476	1	Cover - Transducer Box
4	508-0001	2	Grommet, Rubber (1-1/6" OD)
5	860-0008	8	Nut, Hex (#8-32)
6	853-0005	8	Washer, Lock - External Tooth (#8)
7	526-0003	8	Washer, Flat (11/64" ID x 3/8" OD x 1/32" Thk)
8	402-0354	4	Mount, Vibration
9	TRANSDUCER (Select as Required)		
	302-1082	1	60 Hertz
	302-1083	1	50 Hertz
10	821-0014	8	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")
11	402-0070	4	Mount, Vibration
12	301-3477	1	Box, Transducer

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
13	815-0350	6	Screw, Tapping - Hex Washer Head (#10-32 x 3/8")
14	812-0063	4	Screw, Machine - Round Head (#6-32 x 1/2")
15	853-0003	4	Washer, Lock - External Tooth (#6)
16	860-0006	4	Nut, Hex (#6-32)
17	332-0609	1	Terminal, Strip
18	332-0610	1	Marker, Strip
19	302-1102	1	Wattmeter (Less Replaceable Dial)
20	DIAL, WATTMETER (Select as Required)		
	302-1103	1	Scale 0-35 kw
	302-1104	1	Scale 0-50 kw
	302-1105	1	Scale 0-70 kw
	302-1106	1	Scale 0-90 kw
	302-1107	1	Scale 0-115 kw
	302-1108	1	Scale 0-160 kw
	302-1109	1	Scale 0-180 kw
	302-1110	1	Scale 0-200 kw

# **OPTIONAL OUTPUT BOX ASSEMBLY (HOUSED SETS)**



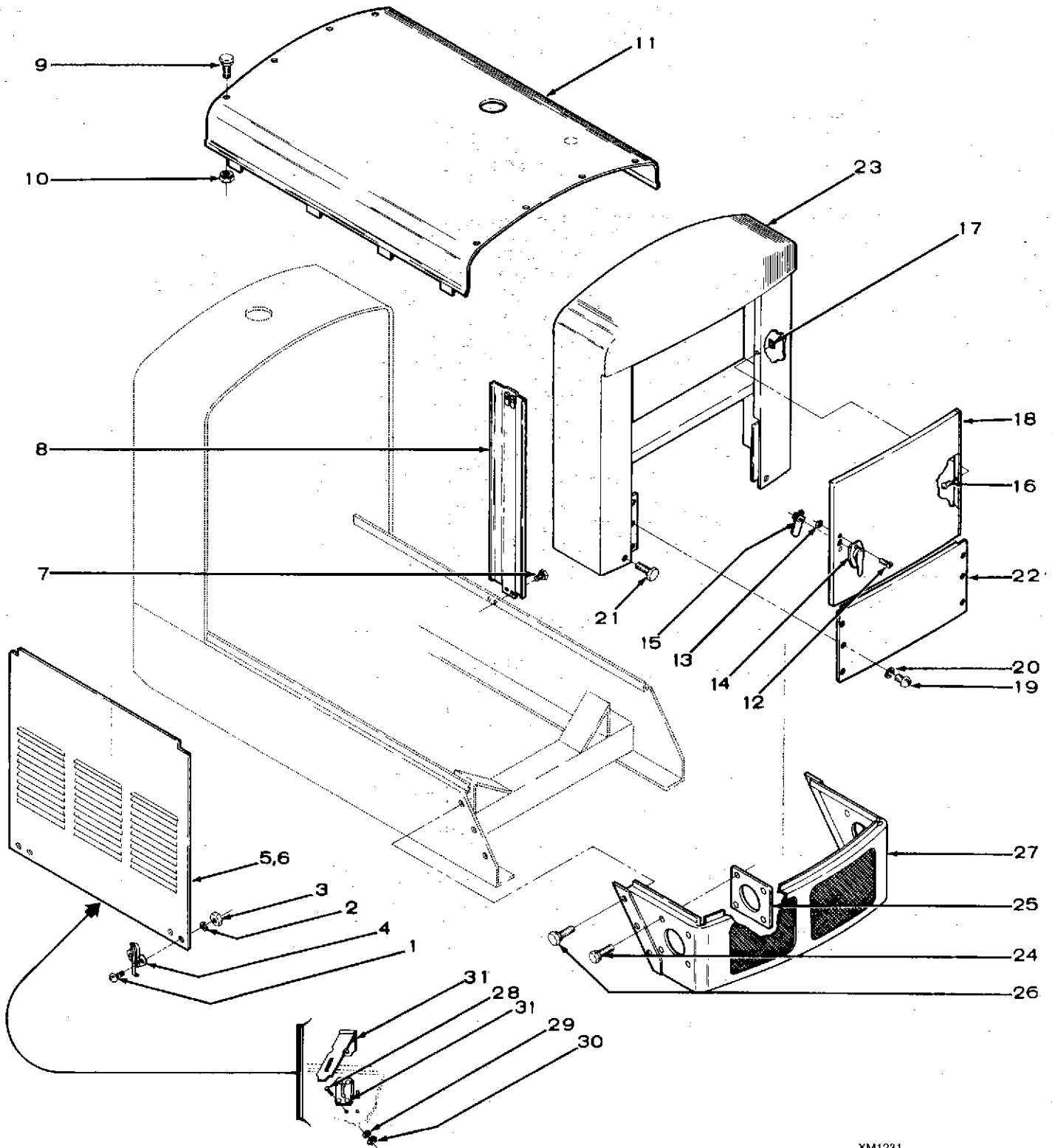
M1230

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	821-0005	4	Screw, Self-locking - Hex Washer Head (#10-32 x 1/2")
2	301-3156	1	Panel, Access
3	815-0350	2	Screw, Tapping - Hex Head, Slotted (#10-32 x 3/8)
4	301-3195	1	Plate, Access - Button
5	821-0014	2	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")
6	821-0010	2	Screw, Self-locking - Hex Washer Head (1/4-20 x 1/2")
7	301-3196	1	Bracket, Support - Current Transformer Assy
8	508-0203	1	Bushing, Nylon
9	301-3191	1	Box, Output

OPTIONAL  
SET HOUSING

F1

F36



XM1231

C10

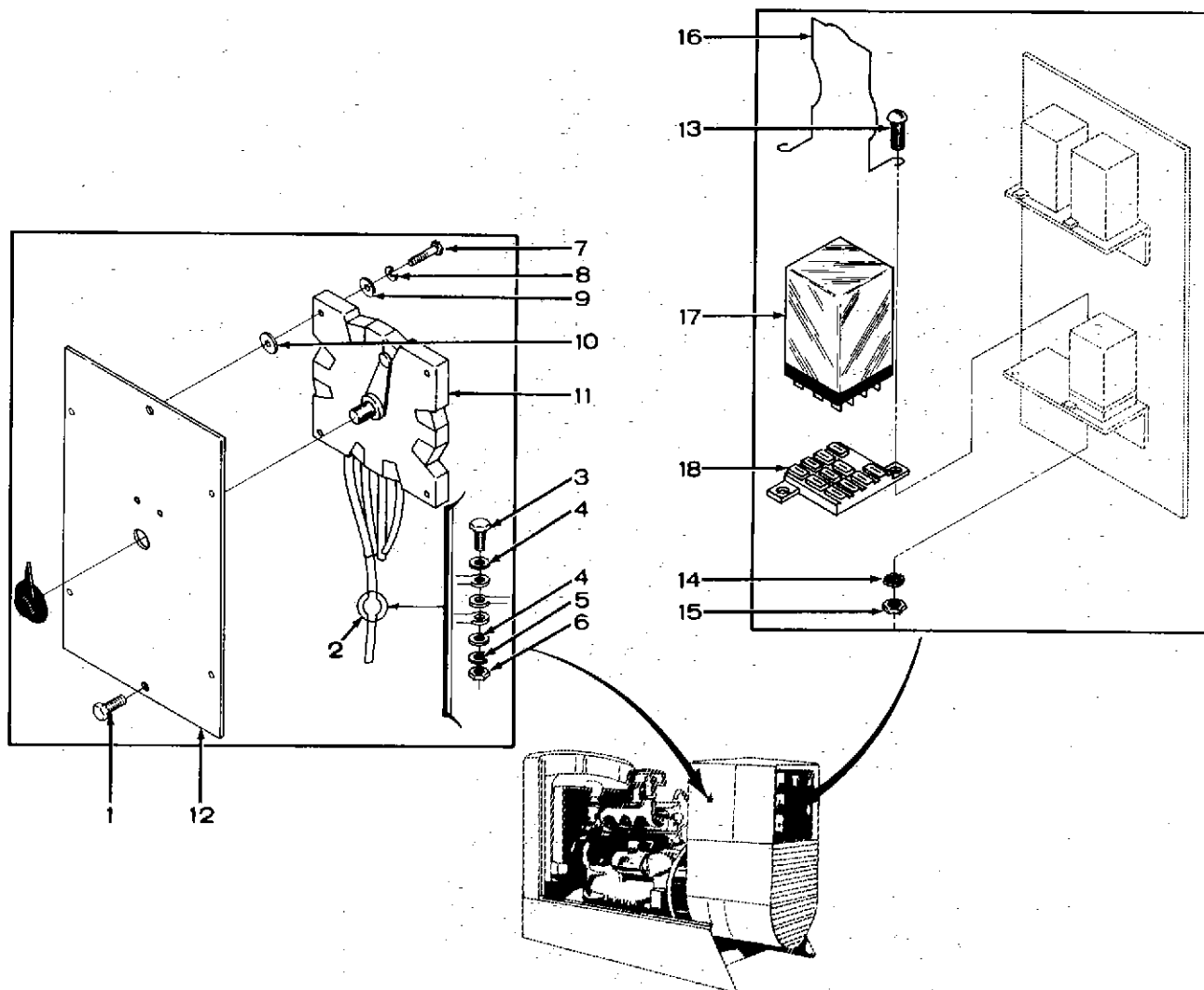
944-0222 (JULY 1981)

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## OPTIONAL SET HOUSING

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	813-0098	16	Screw, Machine - Round Head (#10-32 x 3/8")	14	406-0157	1	Handle, Latch (With Keys)
2	850-0030	16	Washer, Lock - Spring (#10)	15	406-0089	1	Catch, Latch
3	870-0053	16	Nut, Hex (#10-32)	16	809-0059	3	Screw, Tapping - Pan Head (1/4 x 1/2")
4	406-0105	8	Clamp, Door (2 Required Each Door)	17	870-0106	3	Nut, Sheet Spring (1/4")
5	405-1808	2	Door, Access, Louvered - Engine Section (Door Clamps Not Included)	18	405-1777	1	Door, Access - Rear
6	405-1832	2	Door, Access, Louvered - Generator Section, (Door Clamps Not Included)	19	813-0098	6	Screw, Machine - Round Head (#10-32 x 3/8")
7	821-0014	8	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")	20	850-0030	6	Washer, Lock - Spring (#10)
8	405-1814	2	Support, Housing - Center	21	821-0014	8	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")
9	821-0014	12	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")	22	405-1780	1	Panel, Access - Rear
10	870-0113	12	Nut, Clinch (5/16-18)	23	405-1812	1	Panel, Housing - Rear
11	405-2151	1	Panel, Housing - Top	24	821-0010	8	Screw, Self-locking - Hex Washer Head (1/4-20 x 1/2")
12	812-0149	2	Screw, Machine - Round Head (1/4-20 x 9/16")	25	403-0895	2	Plate, Cover
13	870-0232	2	Nut, Self-locking, Hex - With ET Lockwasher (1/4-20)	26	821-0029	6	Screw, Self-locking - Hex Washer Head (3/8-16 x 3/4")
				27	403-0894	1	Chassis - Rear
				28	814-0079	28	Screw, Machine - Flat Head (#8-32 x 1/2")
				29	850-0025	28	Washer, Lock - Spring (#8)
				30	860-0008	28	Nut, Hex (#8-32)
				31	406-0249	4	Hasp Set - Optional

# OPTIONAL DUAL PHASE SWITCH (UNHOUSED SETS)

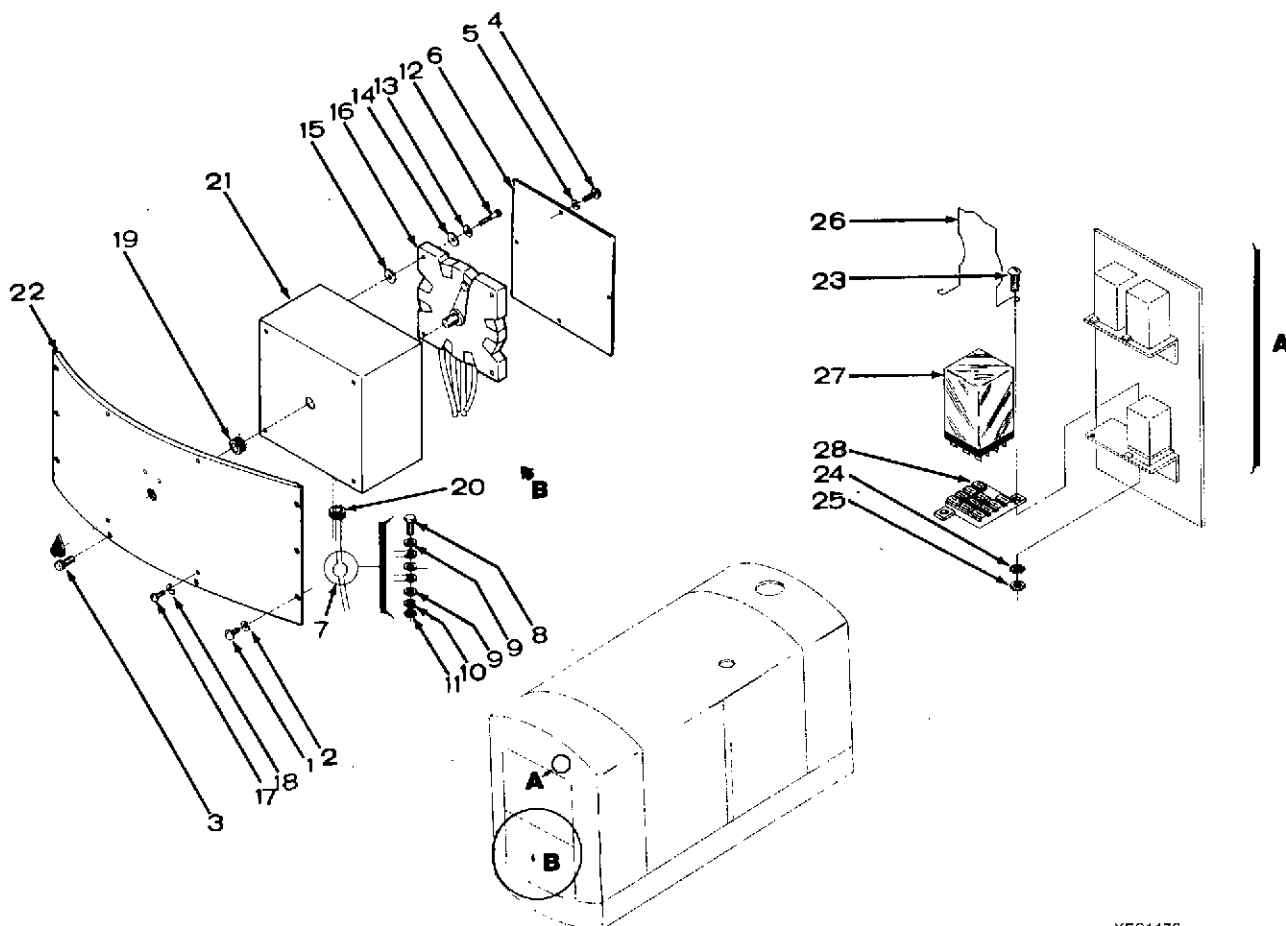


XES1175

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	821-0014	2	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")
2	SLEEVING INSULATION - SHRINKABLE (Select as Required)		
	898-0863		3/4" ID
	898-0865		1" ID
	898-0875		1-1/2" ID
	898-0869		2" ID
	SLEEVING INSULATION — FIBERGLASS (Select as Required)		
	898-0974		3/4" ID
	898-0976		1" ID
3	800-0028	5	Screw, Cap - Hex Head (5/16-18 x 1")
4	526-0022	10	Washer, Flat (21/64" ID x 9/16" OD x 1/16" Thk)
5	850-0045	5	Washer, Lock - Spring (5/16")

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
6	862-0015	5	Nut, Hex (5/16-18)
7	812-0153	4	Screw, Machine - Round Head (#1/4-20 x 1" Lg)
8	850-0040	4	Washer, Lock - Spring (1/4")
9	526-0052	4	Washer, Flat (17/64" ID x 9/16" OD x 1/32" Thk)
10	526-0054	4	Washer, Flat (21/64" ID x 3/4" OD x 1/16" Thk)
11	308-0152	1	Switch, Rotary (Includes Knob)
12	301-3292	1	Panel, Mounting - Switch
13	812-0061	2	Screw, Machine - Round Head (#6-32 x 3/8")
14	853-0003	2	Washer, Lock - External Tooth (#6)
15	860-0006	2	Nut, Hex (#6-32)
16	307-1157	1	Spring, Holddown - Relay
17	307-1143	1	Relay
18	323-0764	1	Socket, Relay

# **OPTIONAL DUAL PHASE SWITCH (HOUSED SETS)**



XES1176

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	813-0098	6	Screw, Machine - Round Head (#10-32 x 3/8")
2	850-0030	6	Washer, Lock - Spring (#10)
3	821-0014	2	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")
4	813-0097	4	Screw, Machine - Round Head (#10-32 x 5/16")
5	850-0030	4	Washer, Lock - Spring (#10)
6	301-3284	1	Cover, Box
7	SLEEVEING, INSULATION - SHRINKABLE (SELECT AS REQUIRED)		
	898-0863		3/4" ID
	898-0865		1" ID
	898-0875		1-1/2" ID
	898-0869		2" ID
	SLEEVEING, INSULATION - FIBER GLASS (Select as Required)		
	898-0974		3/4" ID
	898-0976		1" ID
8	800-0028	5	Screw, Cap - Hex Head (5/16-18 x 1")
9	526-0022	10	Washer, Flat (21/64" ID x 9/16" OD x 1/16" Thk)
10	850-0045	5	Washer, Lock - Spring (5/16")
11	862-0015	5	Nut, Hex (5/16-18)
12	812-0153	4	Screw, Machine - Round Head (#1/4-20 x 1" lg)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
13	850-0040	4	Washer, Lock - Spring (1/4")
14	526-0052	4	Washer, Flat (17/64" ID x 9/16" OD x 1/32" Thk)
15	526-0054	4	Washer, Flat (21/64" ID x 3/4" OD x 1/16" Thk)
16	308-0152	1	Switch, Rotary (Includes Knob)
17	813-0097	4	Screw, Machine - Round Head (#10-32 x 5/16")
18	850-0030	4	Washer, Lock - Spring (#10)
19	508-0009	1	Grommet, Rubber
20	508-0115	2	Grommet, Rubber
21	301-3283	1	Box, Switch
22	PANEL, ACCESS - HOUSING REAR (Select Size as Applicable)		
	405-1840	1	10-1/4" H x 22" W
	405-2160	1	14-1/2" H x 22" W
23	812-0061	2	Screw, Machine - Round Head (#6-32 x 3/8")
24	853-0003	2	Washer, Lock - External Tooth (#6)
25	860-0006	2	Nut, Hex (#6-32)
26	307-1157	1	Spring, Holddown - Relay
27	307-1143	1	Relay
28	323-0764	1	Socket, Relay

179-2058

179-2090

179-2094

179-2102

179-2112

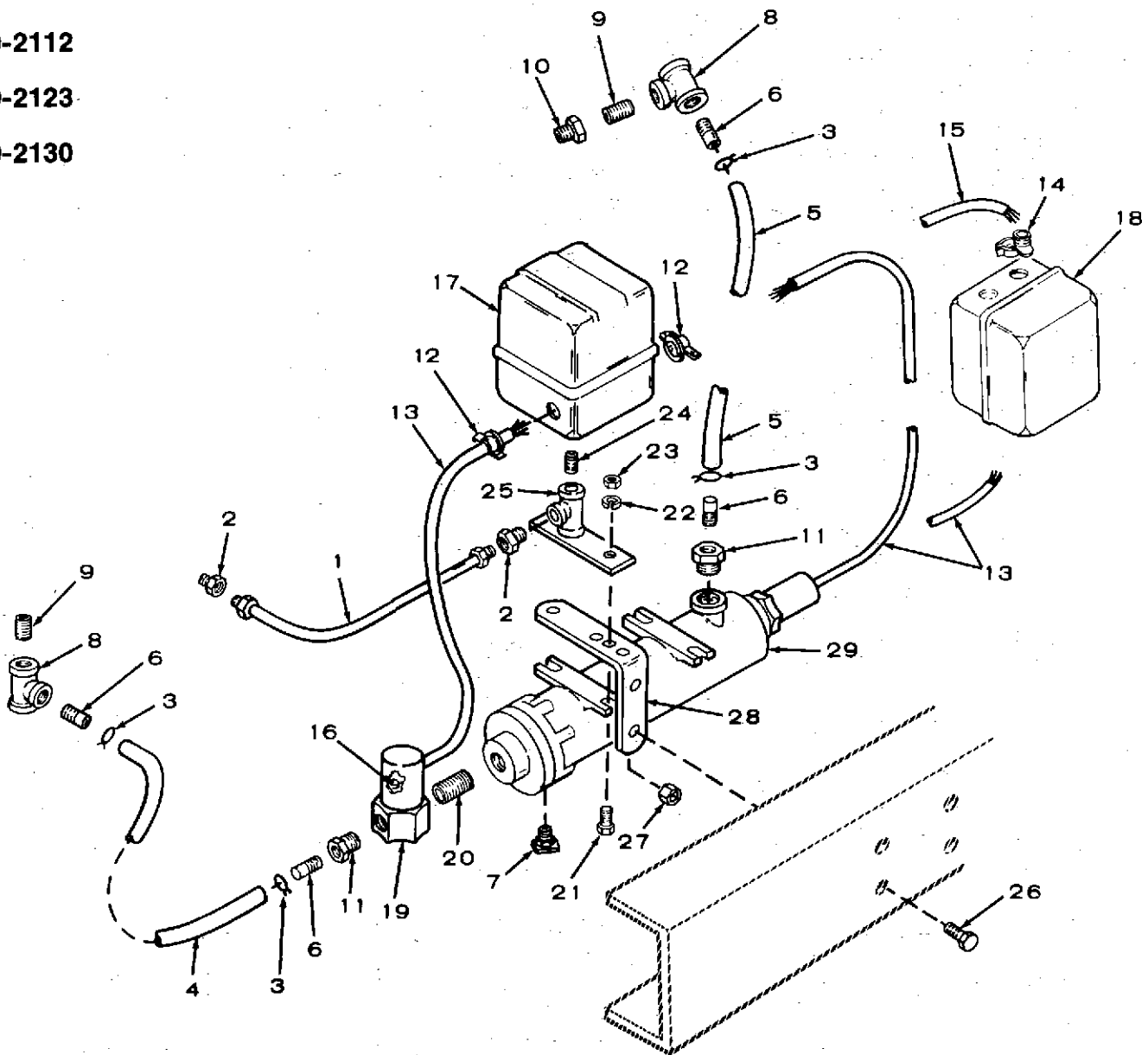
179-2123

179-2130

# OPTIONAL ENGINE COOLANT HEATER

H411

H420



CS-1105

D2

944-0222 (JULY 1981)

## OPTIONAL ENGINE COOLANT HEATER

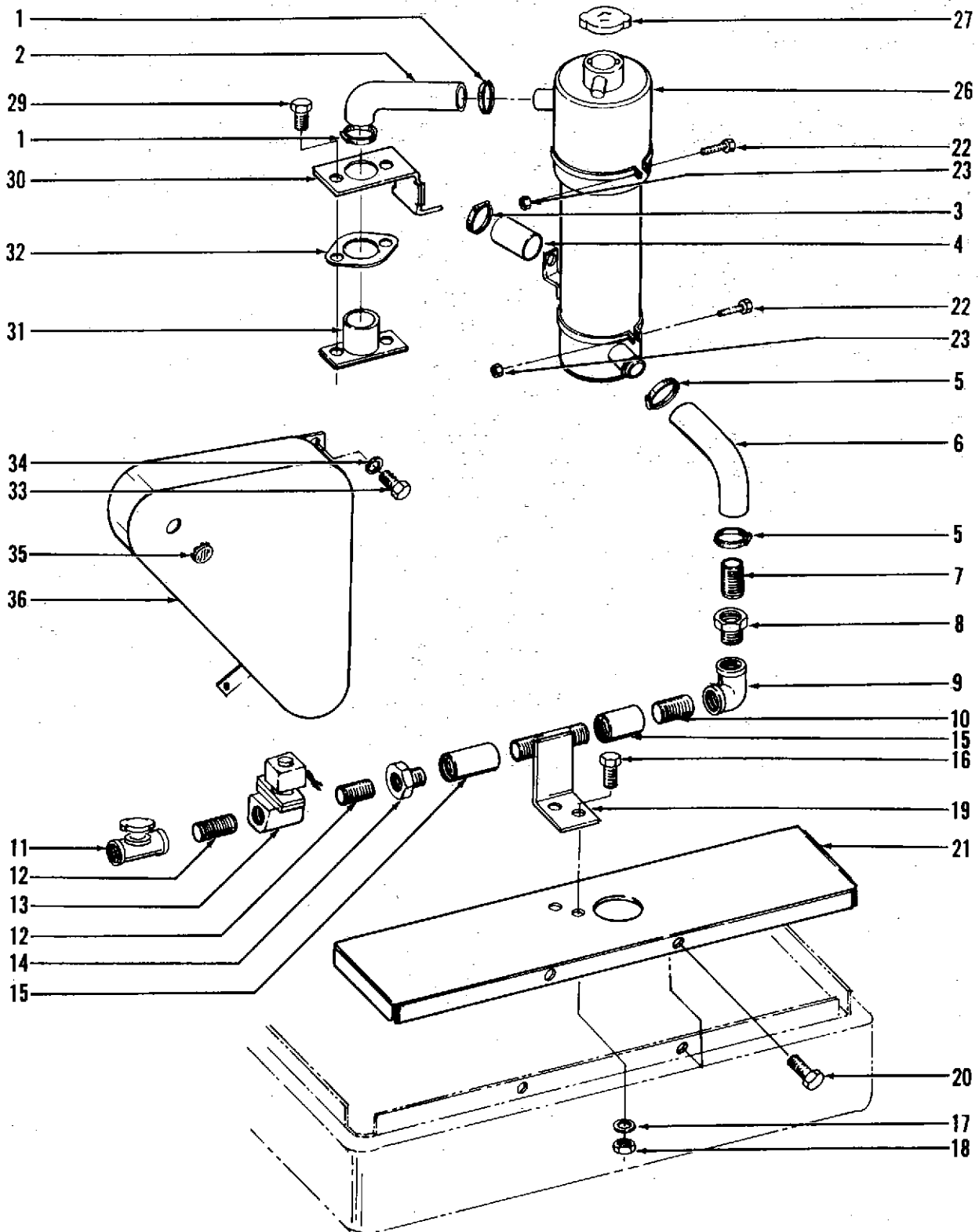
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	ENGINE COOLANT HEATER		
	179-2058	1	115 Volt, 1 Phase
	179-2090	1	480 Volt, 1 Phase
	179-2094	1	240 Volt, 1 Phase
	179-2102	1	208 Volt, 1 Phase
	179-2112	1	380 Volt, 3 Phase
	179-2123	1	208 Volt, 3 Phase
	179-2130	1	480 Volt, 3 Phase
1	501-0227	1	Line, Fuel - Flexible
2	505-0007	2	Bushing, Reducer (1/4" NPT x 1/8" NPT)
3	503-0183	4	Clamp, Hose
4	503-0843	1	Hose, Rubber (5/8" ID x 61/64" OD x 40" Lg)
5	503-0833	1	Hose, Rubber (5/8" ID x 61/64" OD x 24" Lg)
6	505-0135	4	Nipple, Pipe - Half (3/8" NPT x 1-1/2" Lg)
7	504-0003	1	Cock, Drain (1/4" NPT)
8	505-0060	2	Tee, Pipe (3/8" NPT)
9	505-0101	2	Nipple Pipe - Close (3/8" NPT x 1")
10	505-0131	1	Bushing, Reducer (3/4" NPT x 3/8" NPT)
11	505-0455	1	Bushing, Reducer (1" NPT x 3/8" NPT)
12	331-0027	2	Clamp, Cable (3/8" OD Cable)
13	#		Cord, Electrical - 2 #14, Type So, 600 Volt, 60°
14	331-0027	4	Clamp, Cable (3/8" OD Cable) - Used with Contactor only
15	CABLE, ELECTRICAL (Type So, 600 Volt)		
	#		3 - #12 (Used on Single Phase Hookup)
	#		4 - #14 (Used on Three Phase Hookup)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
16	CONNECTORS		
	332-0149	8	Terminal, Lug (Used on White Leads)
	323-0957	2	Wire Nut (Used on Black Leads)
17	309-0307	1	Switch, Pressure - Oil
18	CONTACTOR (Select by Applicable Voltage)		
	307-1460	1	240 Volt, 30 Amp
	307-1164	1	480 Volt, 30 Amp
19	309-0304	1	Switch, Thermostatic
20	505-0004	1	Nipple, Pipe - Close (1" NPT x 1-1/2" Lg)
21	800-0007	4	Screw, Cap - Hex Head (1/4-20 x 1")
22	850-0040	4	Washer, Lock - Spring (1/4")
23	862-0001	4	Nut, Hex (1/4-20)
24	505-0099	1	Nipple, Pipe - Close (1/4" NPT x 7/8" Lg)
25	333-0142	1	Support with Tee - Pressure Switch Mounting
26	821-0016	4	Screw, Self-locking - Hex Washer Head (5/16-18 x 3/4")
27	870-0257	4	Nut, Self-locking - Hex Washer Head (5/16-18)
28	130-1192	2	Bracket, Angle - Heater Mounting
29	HEATER, ELECTRICAL - ENGINE COOLANT (Select As Applicable)		
	333-0158	1	2000 Watts, 115 Volt, 1 Phase
	333-0167	1	2000 Watts, 208 Volt, 1 Phase
	333-0148	1	2000 Watts, 208 Volt, 3 Phase
	333-0141	1	2000 Watts, 240 Volt, 1 Phase
	333-0176	1	2000 Watts, 380 Volt, 1 Phase
	333-0170	1	2000 Watts, 380 Volt, 3 Phase
	333-0147	1	2000 Watts, 480 Volt, 1 Phase
	333-0146	1	2000 Watts, 480 Volt, 3 Phase

# Electrical Cable and Cord Shown For Reference Purpose Only.



# OPTIONAL COOLING SYSTEM (WITH HEAT EXCHANGER)



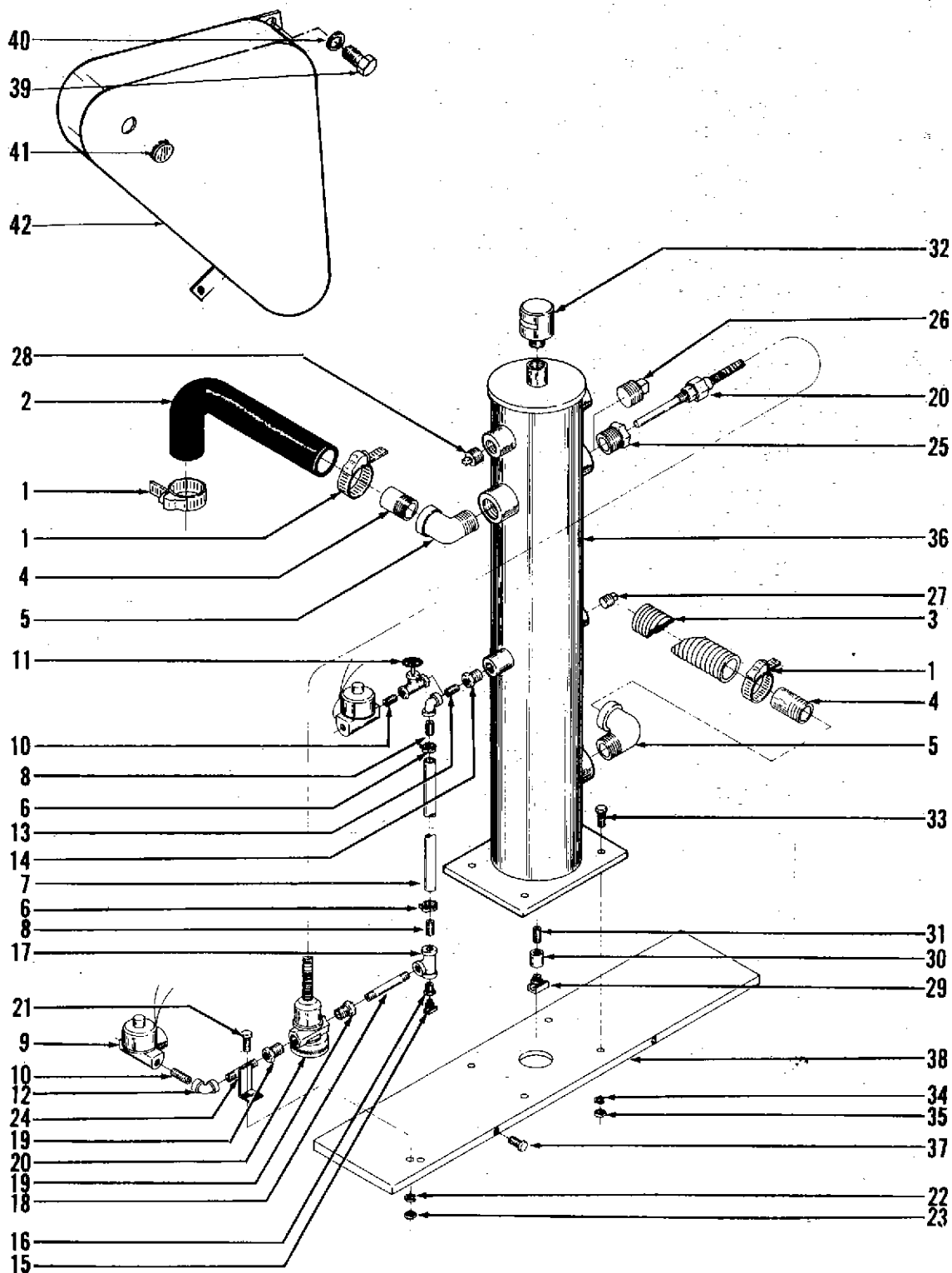
XCS1116

# **OPTIONAL COOLING SYSTEM WITH HEAT EXCHANGER**

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	179-1092	1	Cooling System with Heat Exchanger	18	862-0001	2	Nut, Hex (1/4-20)
1	503-0429	2	Clamp, Hose	19	110-0810	1	Bracket and Nipple Assembly (3/4" NPT)
2	503-0961	1	Hose, Rubber - Preformed (1-1/2" ID & 1-3/4" ID)	20	821-0018	6	Screw, Self-locking - Hex Washer Head (1/4-20 x 5/8")
3	503-0365	2	Clamp, Hose	21	403-1461	1	Plate, Mounting - Standpipe
4	503-0962	1	Hose, Rubber (1-3/4" ID x 3-1/2" Lg)	22	813-0105	2	Screw, Machine - Round Head (#10-32 x 1" Lg)
5	503-0183	2	Clamp, Hose	23	870-0188	2	Nut, Self-locking, Hex (#10-32)
6	503-1000	1	Hose, Rubber (5/8" ID x 9" Lg)	24	130-1385	1	Band, Mounting - Heat Exchanger
7	505-0135	1	Nipple, Pipe - Half (3/8" NPT x 1-1/2" Lg)	25	130-1384	1	Band, Mounting - Heat Exchanger
8	505-0131	1	Bushing, Reducer - Hex (3/4" NPT x 3/8" NPT)	26	130-0962	1	Heat Exchanger (Includes Cap)
9	505-0132	1	Elbow, Pipe - 90 DEG (3/4" NPT)	27		1	Cap, Pressure (Part of Heat Exchanger)
10	505-0102	1	Nipple, Pipe (3/4" NPT x 1-3/8" Lg)	28	130-1383	1	Brace, Support - Heat Exchanger
11	504-0019	1	Valve, Globe (3/4" NPT)	29	800-0051	2	Screw, Cap - Hex Head (3/8-16 x 1-1/4")
12	505-0106	2	Nipple, Pipe (1/2" NPT x 1-1/2" Lg)	30	130-1390	1	Bracket, Support - Heat Exchanger
13	307-0833	1	Valve, Control - Solenoid	31	130-0954	1	Plate, Outlet - Engine Coolant
14	505-0021	1	Bushing, Reducer - Hex (3/4" NPT x 1/2" NPT)	32	130-1386	1	Gasket - Outlet Plate
15	505-0029	2	Coupling, Pipe (3/4" NPT)	33	800-0052	1	Screw, Cap - Hex Head (3/8-16 x 1-1/2" Lg)
16	800-0007	2	Screw, Cap - Hex Head (1/4-20 x 1" Lg)	34	850-0050	1	Washer, Lock - Spring (3/8")
17	850-0050	2	Washer, Lock - Spring (1/4")	35	517-0021	1	Plug, Button
				36	130-0957	1	Guard, Belt

**179-1103**

## E45



XCS1117

944-0222 (JULY 1981)

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# **OPTIONAL COOLING SYSTEM (WITH CIRCULAR STANDPIPE)**

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	COOLING SYSTEM WITH STANDPIPE		
	179-1090	1	†Without Coolant Temperature Regulator
	179-1103	1	£With Coolant Temperature Regulator
1	503-0365	4	Clamp, Hose
2	503-0727	1	Hose, Rubber - Preformed (1-3/4" ID x 1-1/2" ID)
3	503-0956	1	Hose, Rubber - with Spring (1-3/4" ID)
4	505-0385	2	Nipple, Pipe - Half (1-1/2" NPT x 2" Lg)
5	505-0462	2	Elbow, Pipe - 90 DEG (1-1/2" NPT)
6	503-0189	2	£Clamp, Hose
7	503-0437	1	£Hose, Rubber (3/4" ID x 7-1/2" Lg)
8	505-0185	2	£Nipple, Pipe - Half (1/2" NPT x 1-1/2" Lg)
9	307-0833	1	Valve, Control - Solenoid
10	505-0100	1	Nipple, Pipe - Close (1/2" NPT x 1-1/8" Lg)
11	504-0019	1	†Valve, Globe (1/2" NPT)
12	505-0040	2	£Elbow, Pipe - 90 DEG (1/2" NPT)
13	505-0100	1	Nipple, Pipe - Close (1/2" NPT x 1-1/8" Lg)
14	505-0021	1	Bushing, Reducer - Hex (3/4" NPT x 1/2" NPT)
15	504-0028	1	£Cock, Drain (3/8" NPT)
16	505-0019	1	£Bushing, Reducer - Hex (1/2" NPT x 3/8" NPT)
17	505-0108	1	£Tee, Pipe (1/2" NPT)
18	505-0002	1	£Nipple, Pipe (1/2" NPT x 3" Lg)
19	505-0021	2	£Bushing, Reducer - Hex (3/4" NPT x 1/2" NPT)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
20	309-0241	1	£Valve, Control - Temperature Regulating
21	800-0027	2	£Screw, Cap - Hex Head (5/16-18 x 7/8")
22	850-0045	2	£Washer, Lock - Spring (5/16")
23	862-0015	2	£Nut, Hex (5/16-18)
24	110-0526	1	£Bracket and Nipple Assembly (1-1/2" NPT x 3/4" NPT)
25	505-0289	1	£Bushing, Reducer - Hex (1-1/2" NPT x 3/4" NPT)
26	505-0402	1	†Plug, Pipe - Square Head (1-1/2" NPT)
27	505-0130	1	Plug, Pipe - Square Head (3/4" NPT)
28	505-0140	2	Plug, Pipe - Square Head (1" NPT)
29	504-0028	1	Cock, Drain (3/8" NPT)
30	505-0028	1	Coupling, Pipe (3/8" NPT)
31	505-0101	1	Nipple, Pipe - Close (3/8" NPT x 1")
32	504-0062	1	Valve, Relief - Vacuum
33	800-0048	4	Screw, Cap - Hex Head (3/8-16 x 3/4")
34	850-0050	4	Washer, Lock - Spring (3/8")
35	862-0003	4	Nut, Hex (3/8-16)
36	130-0635	1	Tank, Stand Pipe
37	821-0018	6	Screw, Self-locking - Hex Washer Head (1/4-20 x 5/8")
38	403-1461	1	Plate, Mounting - Standpipe
39	800-0052	1	Screw, Cap - Hex Head (3/8-16 x 1-1/2")
40	850-0050	1	Washer, Lock - Spring (3/8")
41	517-0021	1	Plug, Button
42	130-0957	1	Guard, Belt

† - Parts used only on Non-regulated System.

£ - Parts used only on Regulated System.

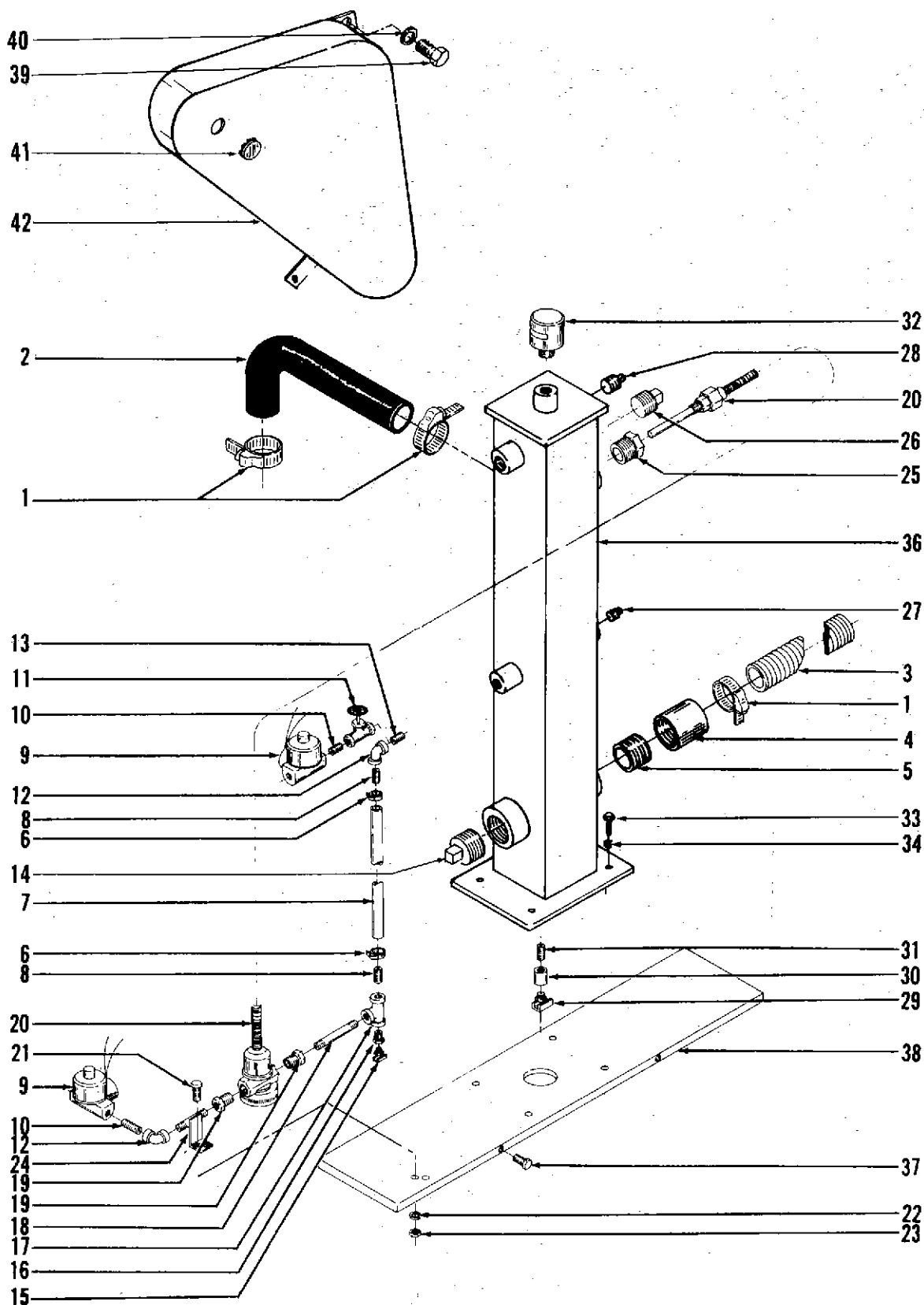
179-1020

179-1021

# OPTIONAL COOLING SYSTEM (WITH SQUARE STANDPIPE)

E13

E45



CS1118

D8

944-0222 (JULY 1981)

# **OPTIONAL COOLING SYSTEM (CITY WATER)**

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	COOLING SYSTEM (City Water)		
	179-1023	1	Without Coolant Temperature Regulator
	179-1024	1	With Coolant Temperature Regulator
1	503-0189	4	Clamp, Hose
2	503-0973	1	Hose, Rubber (3/4" ID x 1-1/8" OD x 20" Lg)
3	503-0436	1	Hose, Rubber (3/4" ID x 1-1/8" OD x 14-1/2" Lg)
4	503-0365	2	Clamp, Hose
5	503-0826	1	Hose, Rubber (1-3/4" ID x 2-1/8" OD x 3" Lg)
6	505-0185	4	Nipple, Pipe-Half (1/2" NPT x 1-1/2")
7	504-0063	1	Cock, Drain (1/4" NPT)
8	505-0018	1	Bushing, Reducer - Hex (1/2" NPT x 1/4" NPT)
9	505-0108	2	Tee, Pipe (1/2" NPT)
10	505-0100	2	Nipple, Pipe - Close (1/2" NPT x 1-1/8")
11	505-0021	2	£Bushing, Reducer - Hex (3/4" NPT x 1/2" NPT)
12	309-0241	1	£Valve, Control - Temperature Regulating
13	307-0833	1	Valve, Control - Solenoid
14	504-0019	1	†Valve, Globe
15	800-0007	2	Screw, Cap - Hex Head (1/4-20 x 1")
16	850-0040	2	Washer, Lock - Spring (1/4")
17	862-0001	2	Nut, Hex (1/4-20)
18	110-0526	1	Bracket and Nipple Assembly

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
19	821-0014	6	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")
20	130-0499	1	Plate, Mounting
21	110-0576	1	Adapter, Hose
22	505-0040	1	£Elbow, Pipe - 90 DEG (1/2" NPT)
23	505-0100	1	£Nipple, Pipe - Close (1/2" NPT x 1-1/8" Lg)
24	505-0022	1	Bushing, Reducer - Hex (1" NPT x 1/2" NPT)
25	505-0041	1	†Elbow, Pipe - 90 DEG (1" NPT)
26	505-0129	1	£Bushing, Reducer - Hex (1" NPT x 3/4" NPT)
27	505-0304	1	£Tee, Pipe (1" NPT)
28	505-0004	1	†Nipple, Pipe - Close (1" NPT x 1-1/8")
29	505-0086	1	£Nipple, Pipe (1" NPT x 2-1/2")
30	505-0003	1	Elbow, Pipe - Street, 90 DEG (1" NPT)
31	505-0304	1	Tee, Pipe (1" NPT)
32	505-0004	1	Nipple, Pipe - Close (1" NPT x 1-1/8")
33	800-0051	2	Screw, Cap - Hex Head (3/8-16 x 1-1/4")
34	130-0954	1	Plate, Outlet - Engine Coolant
35	130-1386	1	Gasket, Thermostat
36	517-0021	1	Plug, Button
37	800-0052	1	Screw, Cap - Hex Head (3/8-16 x 1-1/2")
38	850-0050	1	Washer, Lock - Spring (3/8")
39	130-0957	1	Guard, Belt

† - Parts used on Non-Regulated System.

£ - Parts used on Regulated System.

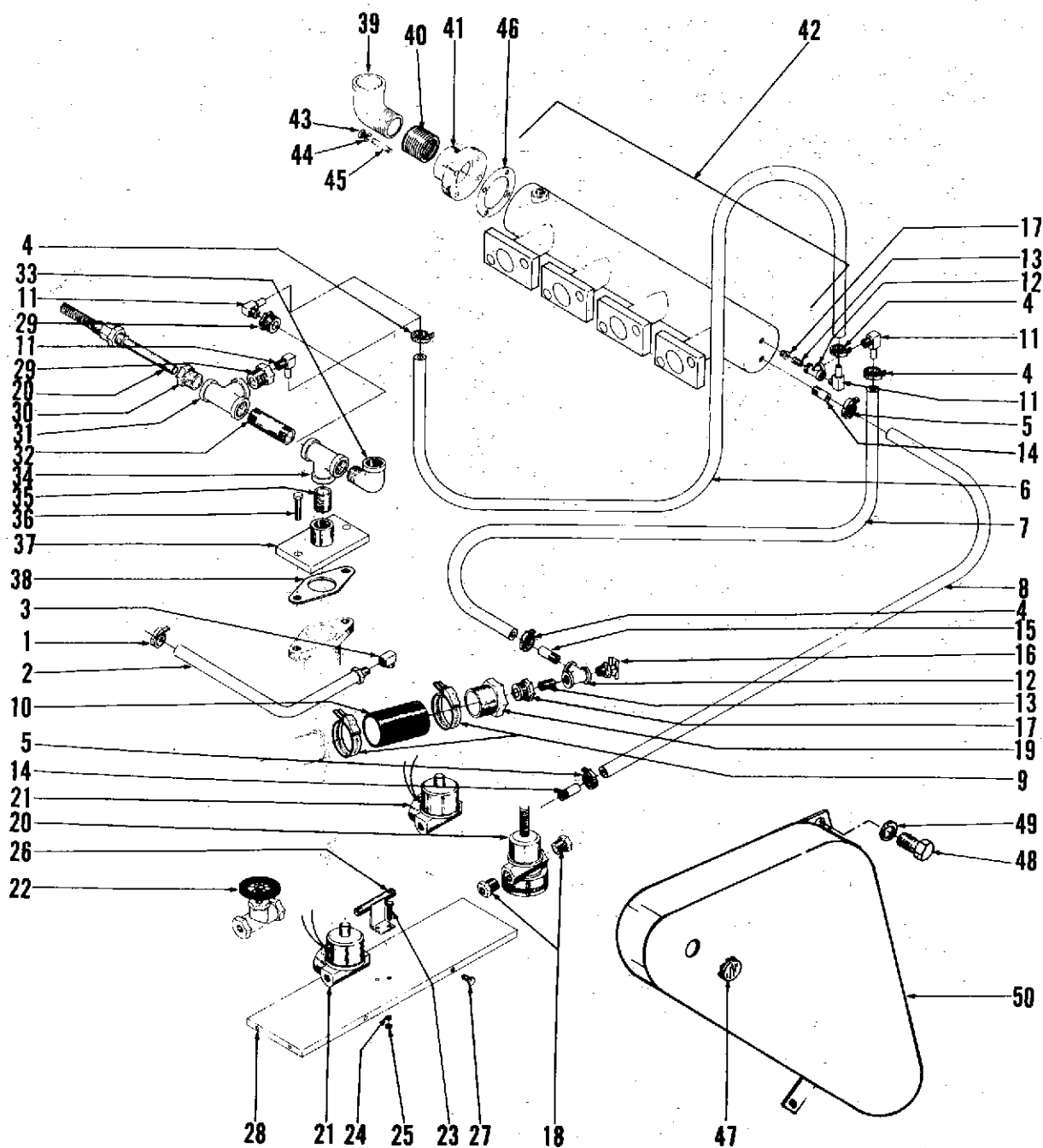
179-1019

179-1022

# OPTIONAL COOLING SYSTEM (CITY WATER WITH WATER COOLED MANIFOLD)

E5

E45



XCS1120

# **OPTIONAL COOLING SYSTEM (WITH SQUARE STANDPIPE)**

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	COOLING SYSTEM WITH STANDPIPE		
	179-1020	1	†Without Coolant Temperature Regulator
	179-1021	1	£With Coolant Temperature Regulator
1	503-0365	4	Clamp, Hose
2	503-0724	1	Hose, Rubber - Preformed (1-3/4" ID x 1-1/2" ID)
3	503-0635	1	Hose, Rubber - with Spring (1-3/4" ID)
4	505-0031	1	Coupling, Pipe (1-1/4" NPT)
5	505-0177	1	Nipple, Pipe - Close (1-1/4" NPT)
6	503-0189	2	£Clamp, Hose
7	503-0437	1	£Hose, Rubber (3/4" ID x 7-1/2" Lg)
8	505-0185	2	£Nipple, Pipe - Half (1/2" NPT x 1-1/2" Lg)
9	307-0833	1	Valve, Control - Solenoid
10	505-0100	1	Nipple, Pipe - Close (1/2" NPT x 1-1/8" Lg)
11	504-0019	1	†Valve, Globe (1/2" NPT)
12	505-0040	2	£Elbow, Pipe - 90 DEG (1/2" NPT)
13	505-0100	1	Nipple, Pipe - Close (1/2" NPT x 1-1/8" Lg)
14	505-0949	1	Plug, Pipe - Socket Head (1-1/4" NPT)
15	504-0028	1	£Cock, Drain (3/8" NPT)
16	505-0019	1	£Bushing, Reducer - Hex (1/2" NPT x 3/8" NPT)
17	505-0108	1	£Tee, Pipe (1/2" NPT)
18	505-0002	1	£Nipple, Pipe (1/2" NPT x 3" Lg)
19	505-0021	2	£Bushing, Reducer - Hex (3/4" NPT x 1/2" NPT)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
20	309-0241	1	£Valve, Control - Temperature Regulating
21	800-0027	2	£Screw, Cap - Hex Head (5/16-18 x 7/8")
22	850-0045	2	£Washer, Lock - Spring (5/16")
23	862-0015	2	£Nut, Hex (5/16-18)
24	110-0526	1	£Bracket and Nipple Assembly
25	505-0129	1	£Bushing, Reducer - Hex (1" NPT x 3/4" NPT)
26	505-0140	1	†Plug, Pipe - Square Head (1" NPT)
27	505-0056	1	Plug, Pipe - Square Head (1/2" NPT)
28	505-0130	2	Plug, Pipe - Square Head (3/4" NPT)
29	504-0028	1	Cock, Drain (3/8" NPT)
30	505-0028	1	Coupling, Pipe (3/8" NPT)
31	505-0101	1	Nipple, Pipe - Close (3/8" NPT x 1")
32	504-0062	1	Valve, Relief - Vacuum
33	800-0048	4	Screw, Cap - Hex Head (3/8-16 x 3/4")
34	850-0050	4	Washer, Lock - Spring (3/8")
36	130-0659	1	Tank, Stand Pipe
37	821-0018	6	Screw, Self-locking - Hex Washer Head (1/4-20 x 5/8")
38	130-0860	1	Plate, Mounting - Stand Pipe
39	800-0052	1	Screw, Cap - Hex Head (3/8-16 x 1-1/2")
40	850-0050	1	Washer, Lock - Spring (3/8")
41	517-0021	1	Plug, Button
42	130-0957	1	Guard, Belt

† - Parts used only on Non-Regulated System.

£ - Parts used only on Regulated System.



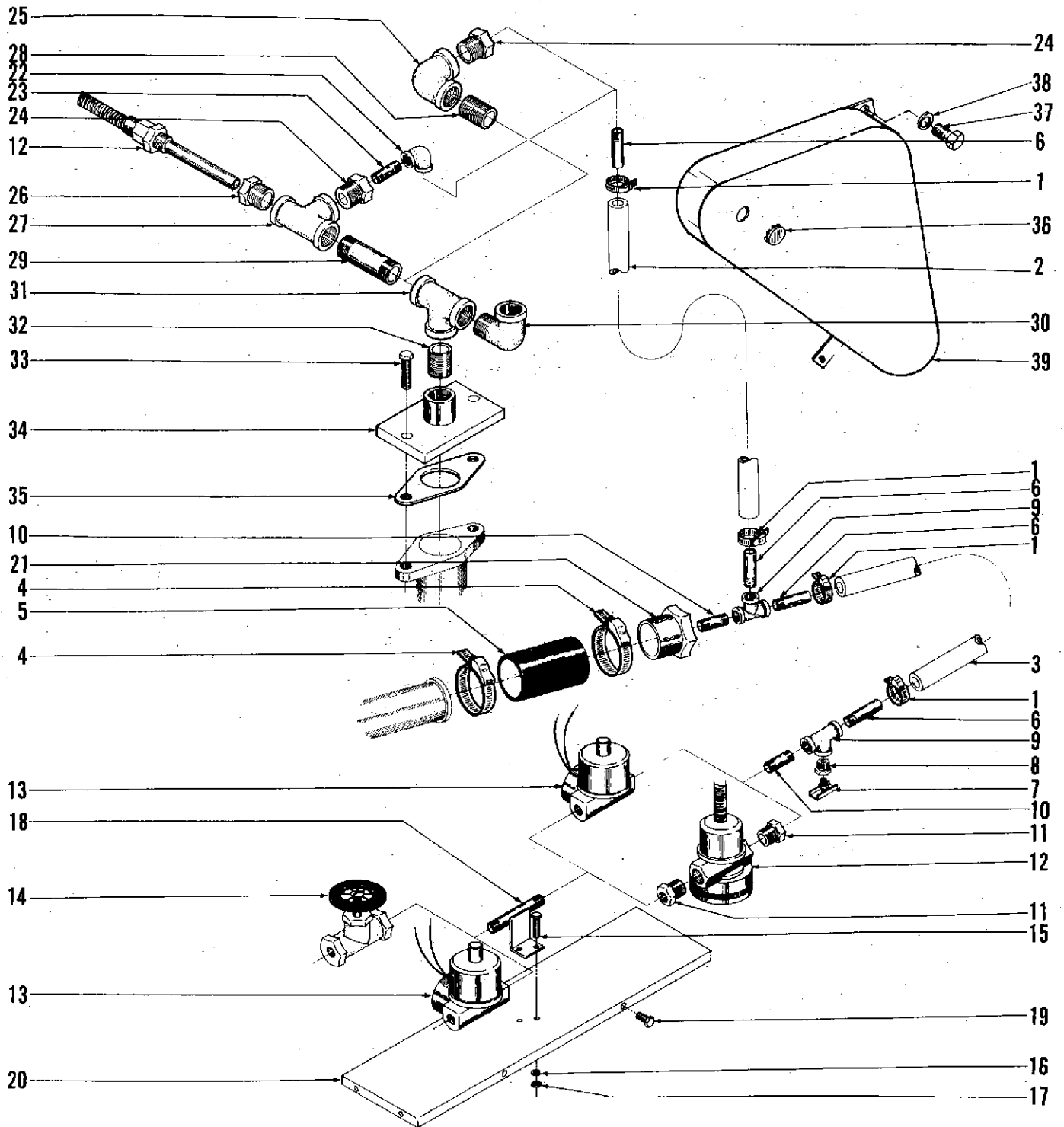
179-1023

179-1024

# OPTIONAL COOLING SYSTEM (CITY WATER)

E4

E45



XCS1119

# **OPTIONAL COOLING SYSTEM (CITY WATER WITH WATER COOLED MANIFOLD)**

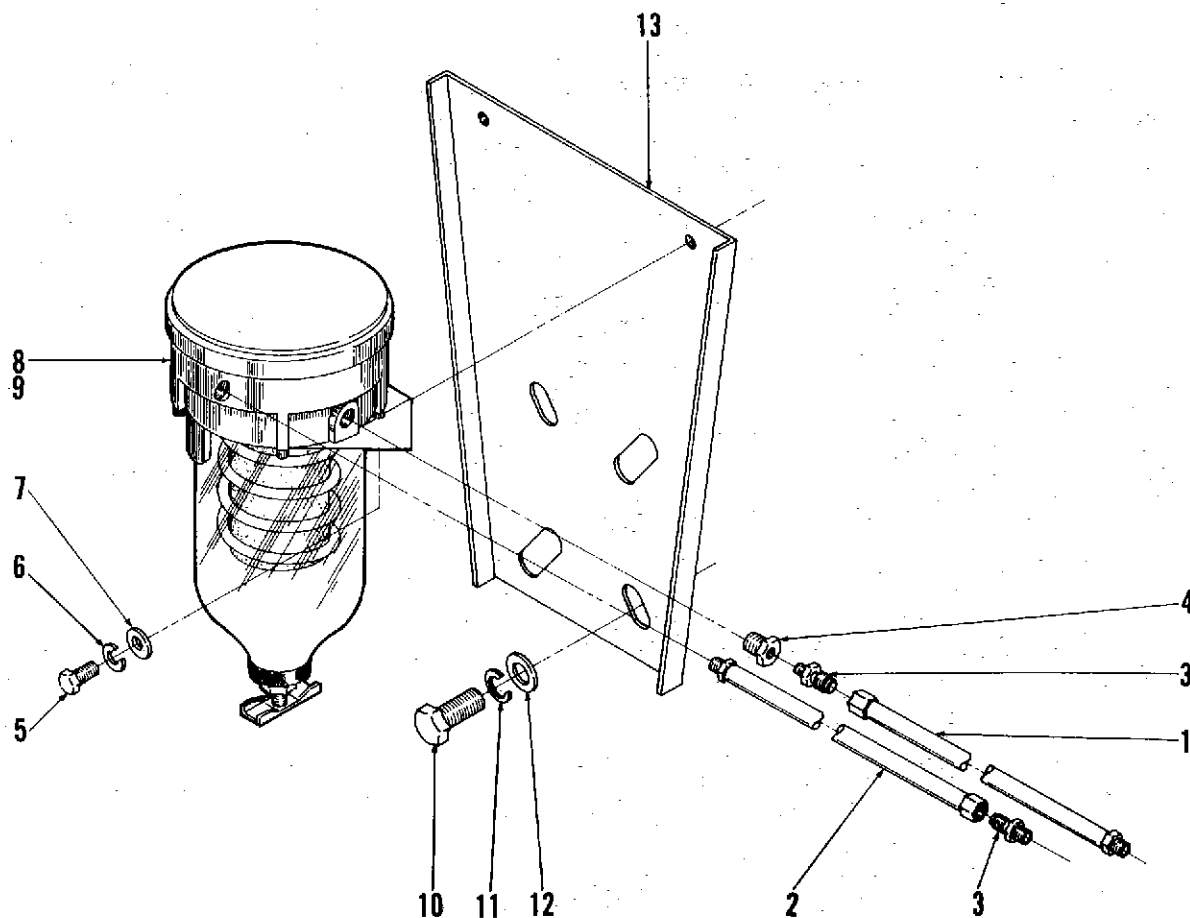
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	COOLING SYSTEM (City Water with Water Cooled Manifold)			24	850-0040	2	Washer, Lock - Spring (1/4")
	179-1019	1	Without Coolant Temperature Regulator	25	862-0001	2	Nut, Hex (1/4-20)
	179-1022	1	With Coolant Temperature Regulator	26	110-0526	1	Bracket and Nipple Assembly
1	503-0685	1	Clamp, Hose	27	821-0018	6	Screw, Self-locking, - Hex Washer Head (1/4-20 x 5/8")
2	501-0201	1	Line, Fuel - Flexible	28	130-0499	1	Plate, Mounting
3	502-0002	1	Elbow, Pipe - Street, 90 DEG (Inverted Male)	29	505-0802	1	Bushing, Reducer - Hex (1" NPT x 1/4" NPT)
4	503-0183	4	Clamp, Hose	30	505-0129	1	£Bushing, Reducer - Hex (1" NPT x 3/4" NPT)
5	503-0189	2	Clamp, Hose	31	505-0304	1	£Tee, Pipe (1" NPT)
6	503-0085	1	Hose, Rubber (1/2" ID x 27/32" OD x 16" Lg)	32	505-0086	1	£Nipple, Pipe (1" NPT x 2-1/2")
7	503-1031	1	Hose, Rubber (1/2" ID x 27/32" OD x 11" Lg)	33	505-0003	1	Elbow, Pipe - Street, 90 DEG (1" NPT)
8	503-1012	1	Hose, Rubber (3/4" ID x 61/64" OD x 27" Lg)	34	505-0304	1	Tee, Pipe (1" NPT)
9	503-0365	2	Clamp, Hose	35	505-0004	1	Nipple, Pipe - Close (1" NPT x 1-1/2")
10	503-0826	1	Hose, Rubber (1-3/4" ID x 2-1/8" OD x 3" Lg)	36	800-0051	2	Screw, Cap - Hex Head (3/8-16 x 1-1/4")
11	502-0304	3	Elbow, Pipe - 90 DEG (1/4" NPT)	37	130-0954	1	Plate, Outlet - Engine Coolant
12	505-0184	2	Tee, Pipe (1/4" NPT)	38	130-1386	1	Gasket - Thermostat
13	505-0099	2	Nipple, Pipe - Close (1/4" NPT x 7/8")	39	505-0201	1	Elbow, Pipe - Street (2" NPT)
14	505-0185	2	Nipple, Pipe - Half (1/2" NPT x 1-1/2")	40	505-0801	1	Bushing, Reducer - Flush (2-1/2" NPT x 2" NPT)
15	505-0302	1	Nipple, Pipe - Half (1/4" NPT x 1-1/2")	41	154-1739	1	Flange, Pipe - Exhaust Outlet
16	504-0063	1	Cock, Drain (1/4" NPT)	42	154-1738	1	Manifold, Exhaust - Liquid Cooled (Includes Items Marked *)
17	505-0018	2	Bushing, Reducer - Hex (1/2" NPT x 1/4" NPT)	43	870-0195	4	*Nut, Self-locking, Hex (5/16-24)
18	505-0021	2	£Bushing, Reducer - Hex (3/4" NPT x 1/2" NPT)	44	850-0165	4	*Washer, Lock - Spring, SST (5/16")
19	110-0576	1	Adapter, Hose	45	520-0108	4	*Stud (5/16-24 x 5/16-18 x 1-9/16" Lg)
20	309-0241	1	£Valve, Control - Temperature Regulating	46	154-2336	1	*Gasket - Exhaust Header
21	307-0833	1	Valve, Control - Solenoid	47	517-0021	1	Plug, Button
22	504-0019	1	†Valve, Globe (Non-Regulating Application)	48	800-0052	1	Screw, Cap - Hex Head (3/8-16 x 1-1/2" Lg)
23	800-0037	2	Screw, Cap - Hex Head (1/4-20 x 1")	49	850-0050	1	Washer, Lock - Spring (3/8")
				50	130-0957	1	Guard, Belt

† - Parts used only on Non-Regulated System.

£ - Parts used only on Regulated System.

\* - Parts Included with Exhaust Manifold.

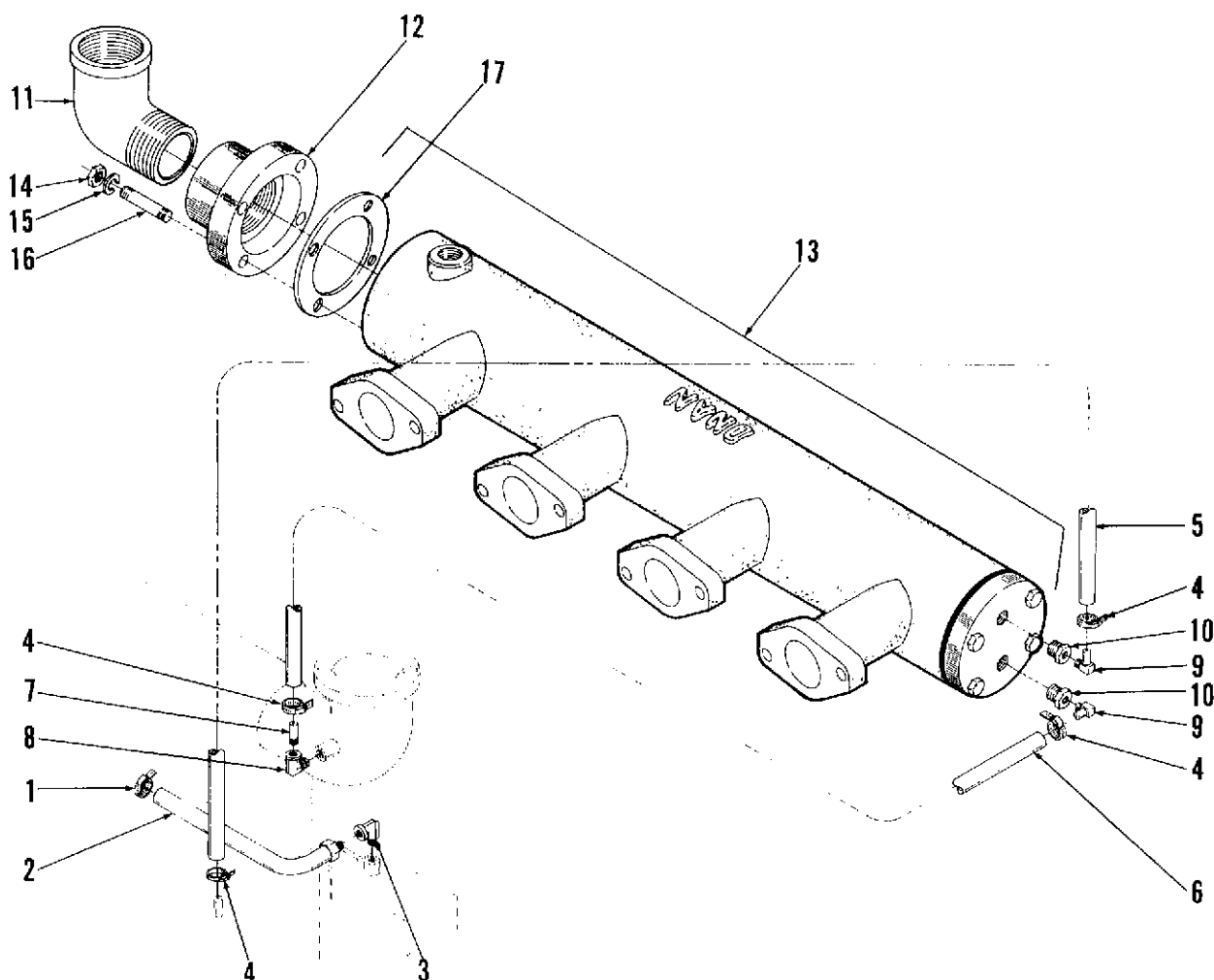
# OPTIONAL FUEL FILTER



XFS1267

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	501-0167	1	Line, Fuel - Flexible
2	501-0005	1	Line, Fuel - Flexible
3	502-0003	2	Connector, Line - Inverted Male
4	502-0638	1	Adapter - Pipe to Line
5	800-0005	2	Screw, Cap - Hex Head (1/4-20 x 3/4")
6	850-0050	2	Washer, Lock - Spring (1/4")
7	526-0015	2	Washer, Flat (9/32" ID x 9/16" OD x 1/16" Thk)
8	149-1613	1	Filter - Fuel (Includes Element)
9	149-1691	1	Element - Fuel Filter
10	800-0090	4	Screw, Cap - Hex Head (1/2-13 x 1")
11	850-0060	4	Washer, Lock - Spring (1/2")
12	526-0028	4	Washer, Flat (9/16" ID x 15/16" OD x 1/16" Thk)
13	149-1614	1	Bracket, Mounting - Fuel Filter

# OPTIONAL EXHAUST MANIFOLD (LIQUID COOLED)



XEXS1053

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	503-0685	1	Clamp, Hose
2	501-0201	1	Line, Fuel - Flexible
3	502-0002	1	Elbow, Pipe - Street, 90 DEG (Inverted Male)
4	503-0183	4	Clamp, Hose
5	503-0119	1	Hose, Rubber (1/2" ID x 18-1/2" Lg)
6	503-0285	1	Hose, Rubber (1/2" ID x 14" Lg)
7	505-0302	1	Nipple, Pipe - Half (1/4" NPT x 1-1/2")
8	505-0011	1	Elbow, Pipe - Street, 90 DEG (1/4" NPT)
9	502-0304	2	Elbow, Pipe - 90 DEG, Brass (1/4" NPT)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
10	502-0210	2	Bushing, Reducer - Hex (1/2" NPT x 1/4" NPT)
11	505-0201	1	Elbow, Pipe - Street, 90 DEG (2" NPT)
12	154-2076	1	Flange, Pipe - Exhaust Outlet
13	154-1754	1	Manifold, Exhaust - Liquid Cooled (Includes Parts Marked *)
14	870-0195	4	*Nut, Self-locking, Hex (5/16-24)
15	850-0165	4	*Washer, Lock - Spring, SST (5/16")
16	520-0108	4	*Stud (5/16-24 x 5/16-18 x 1-9/16" Lg)
17	154-2336	1	*Gasket - Exhaust Header

\* - Parts included with Exhaust Manifold.

179-1520

179-1554

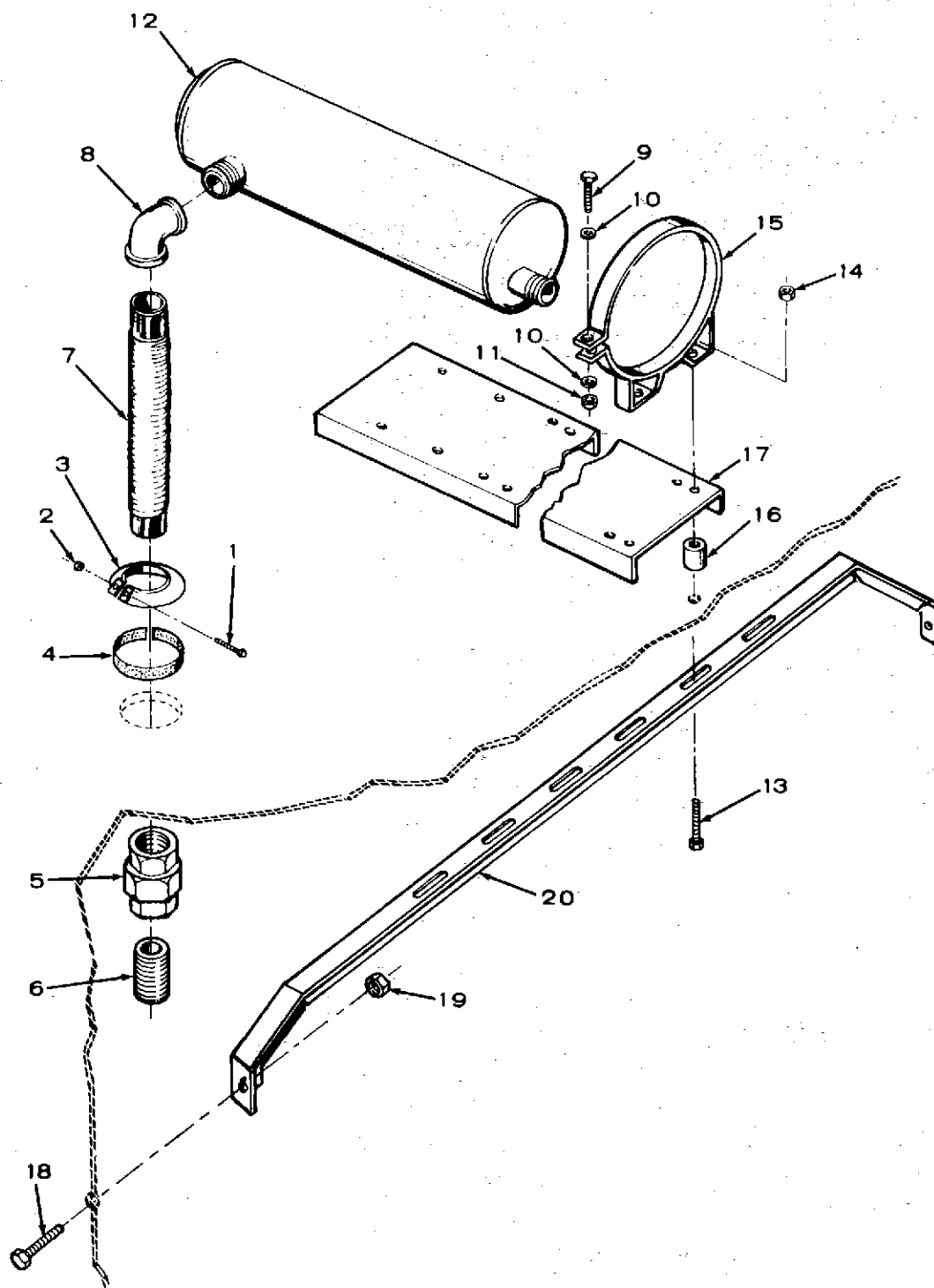
179-1576

179-1606

179-1616

# OPTIONAL EXHAUST MUFFLER (HOUSED SETS)

A76



EXS-1049

# **OPTIONAL EXHAUST MUFFLER (HOUSED SETS)**

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	EXHAUST MUFFLER		
	179-1520	1	Industrial Type
	179-1616	1	Standard Muffler
	179-1554	1	Standard Muffler
	179-1606	1	Stainless Steel Muffler
			Residential/Critical Types
	179-1576	1	Critical Muffler
1	813-0105	1	Screw, Machine - Round Head (#10-32 x 1")
2	870-0188	1	Nut, Self-locking, Hex (#10-32)
3	155-1421	1	Shield, Rain (2-1/2" ID)
4	895-0158	1	Asbestos, Strip (2" x 10" x 1/16" Thk)
5	505-0454	1	Union, Pipe (2" NPT)
6	505-0172	1	Nipple, Pipe - Close (2" NPT x 2" Lg)
7	TUBE, EXHAUST		
	155-1591	1	2" NPT x 10-3/4" Lg
	155-1649	1	2" NPT x 11-7/8" Lg
8	505-0175	1	Elbow, Pipe - 90 DEG (2" NPT)
9	800-0037	3	Screw, Cap - Hex Head (5/16-18 x 3")
10	526-0113	6	Washer, Flat (11/32" ID x 1" OD x 3/32" Thk)

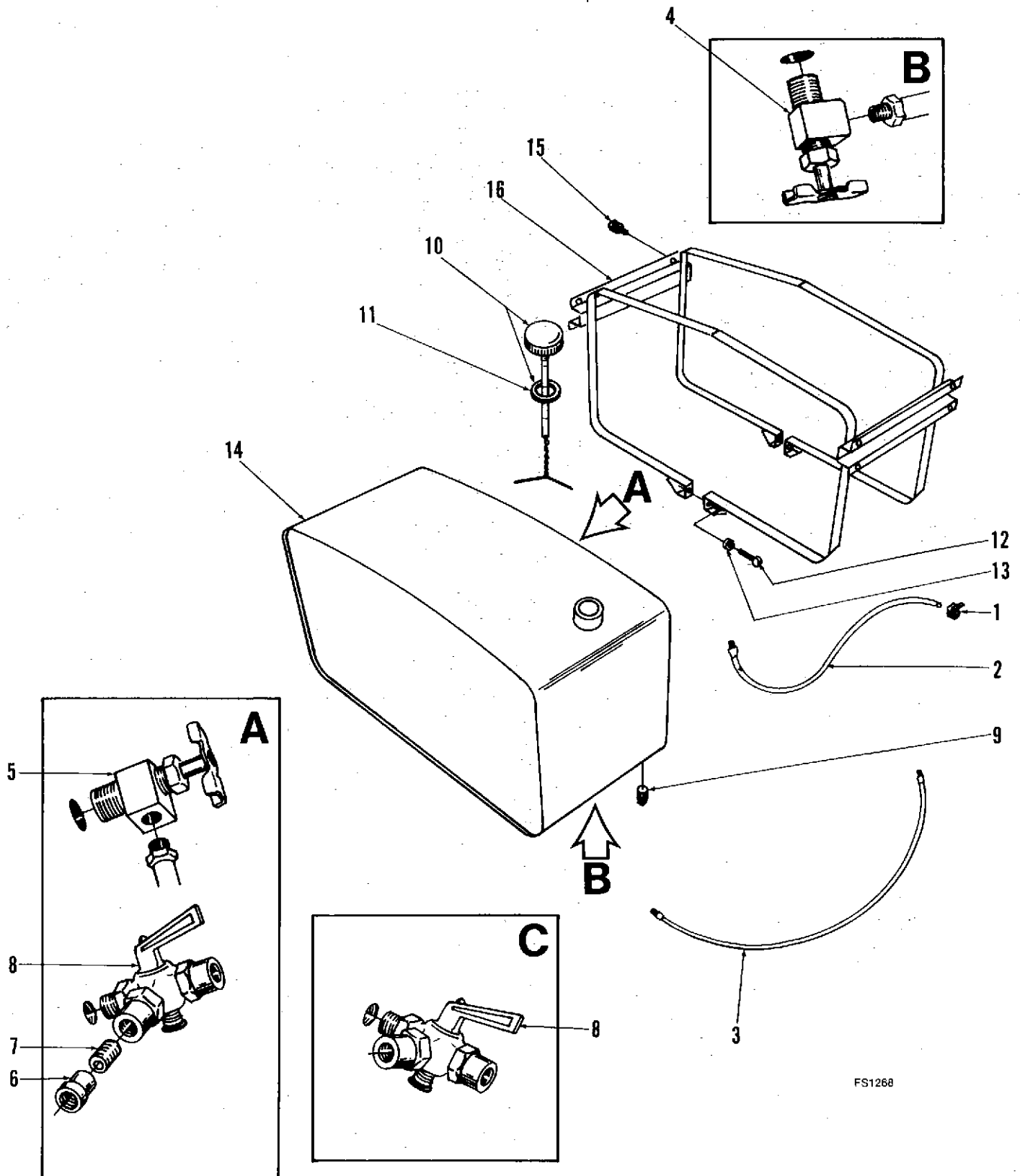
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
11	870-0257	3	Nut, Self-locking, Hex Washer Head (5/16-18)
12	MUFFLER, EXHAUST (Select as Applicable)		
	155-0988	1	Industrial (10" OD x 43" Lg)
	155-1512	1	Industrial, SST (10" OD x 43" Lg)
	155-1617	1	Critical (12" OD x 44" Lg)
13	800-0037	6	Screw, Cap - Hex Head (5/16-18 x 3")
14	870-0048	6	Nut, Self-locking, Hex (5/16-18)
15	BAND, MOUNTING - MUFFLER		
	140-0649	3	10" ID
	140-1588	3	10" ID, SST
	140-0752	3	12" ID
16	155-1430	6	Spacer, Sleeve (1/2" ID x 1-1/2" OD x 2" Thk)
17	HEAT SHIELD		
	155-0978	1	10" W x 36" Lg
	155-1644	1	10" W x 36" Lg, SST
	155-1648	1	10" W x 40" Lg, SST
18	800-0026	6	Screw, Cap - Hex Head (5/16-18 x 3/4")
19	870-0048	6	Nut, Self-locking, Hex (5/16-18)
20	155-0789	3	Support, Mounting - Muffler

179-0442

179-0463

OPTIONAL  
FUEL TANK — MOUNTED  
(HOUSED SETS)

C7



FS1268

# **OPTIONAL FUEL TANK-MOUNTED (HOUSED SETS)**

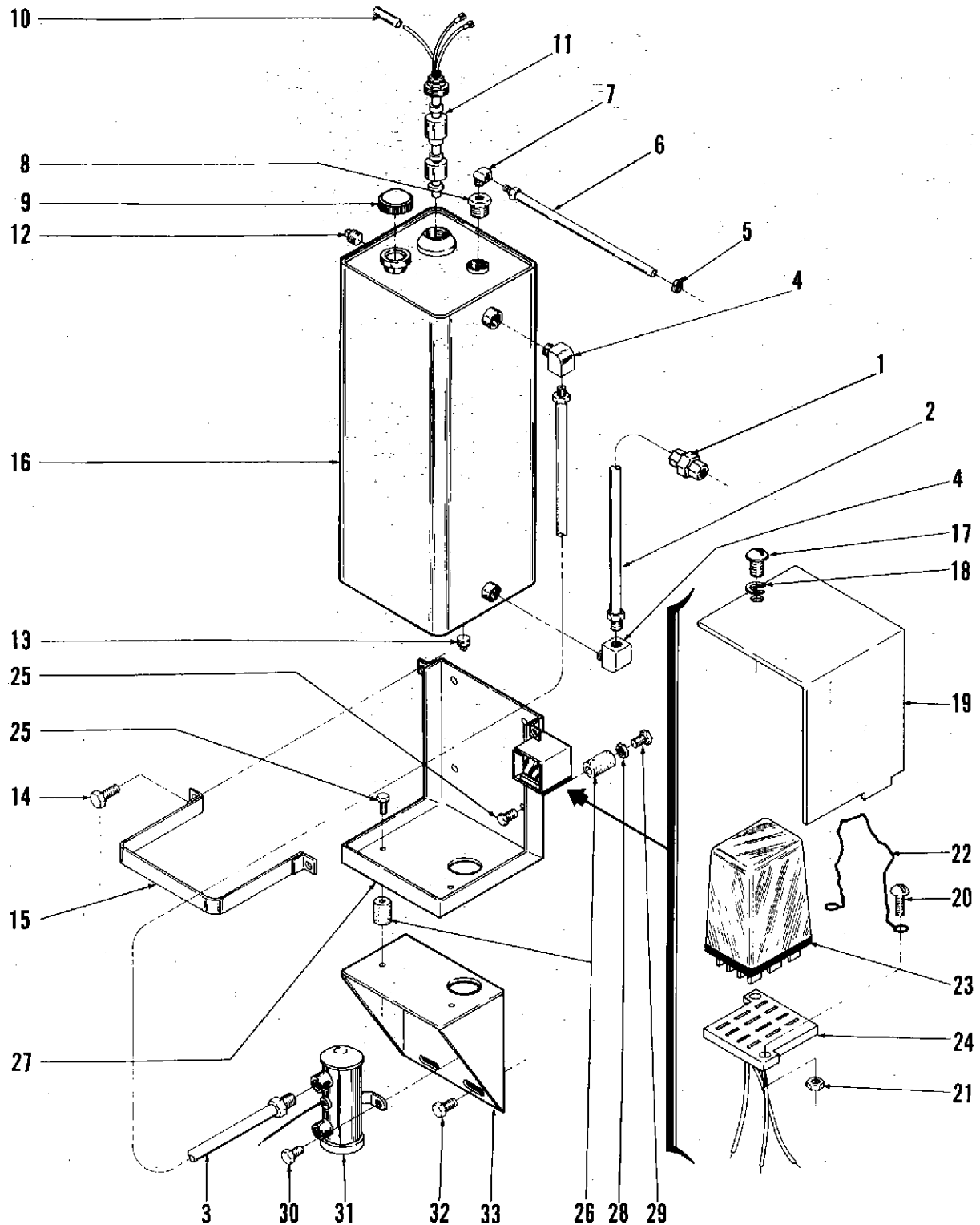
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	179-0442	1	Mounted Fuel Tank
	179-0463	1	Mounted Fuel Tank with Three Way Valves
1	503-0685	1	Clamp, Hose (1/2" OD Hose)
2	501-0205	1	Line, Fuel - Flexible (72")
3	501-0027	1	Line, Fuel - Flexible (48")
4	504-0013	1	Valve, Shutoff - with Screen (1/8" NPT)
5	504-0007	1	*Valve, Shutoff (1/8" NPT)
6	502-0017	1	£Connector, Inverted Female
7	502-0046	1	£Nipple, Pipe - Close, Brass (1/8" NPT x 3/4" Lg)
8	504-0004	2	£Valve, Shutoff - 3 Way
9	505-0057	1	Plug, Pipe - Square Head (1/8" NPT)
10	159-0512	1	Cap and Indicator, Fuel (Includes Gasket)
11	159-0751	1	Gasket, Fuel Cap
12	812-0158	2	Screw, Machine - Round Head (1/4-20 x 2")
13	850-0040	2	Washer, Lock - Spring (1/4")
14	159-1025	1	Tank, Fuel - 20 Gal
15	821-0010	8	Screw, Self-locking - Hex Washer Head (1/4-20 x 1/2")
16	159-0489	1	Strap Assembly - Tank Mounting

\* - Parts used only on 179-0442 Tank.

£ - Parts used only on 179-0463 Tank.



**OPTIONAL  
FUEL TANK RESERVOIR  
(HOUSED SETS)**

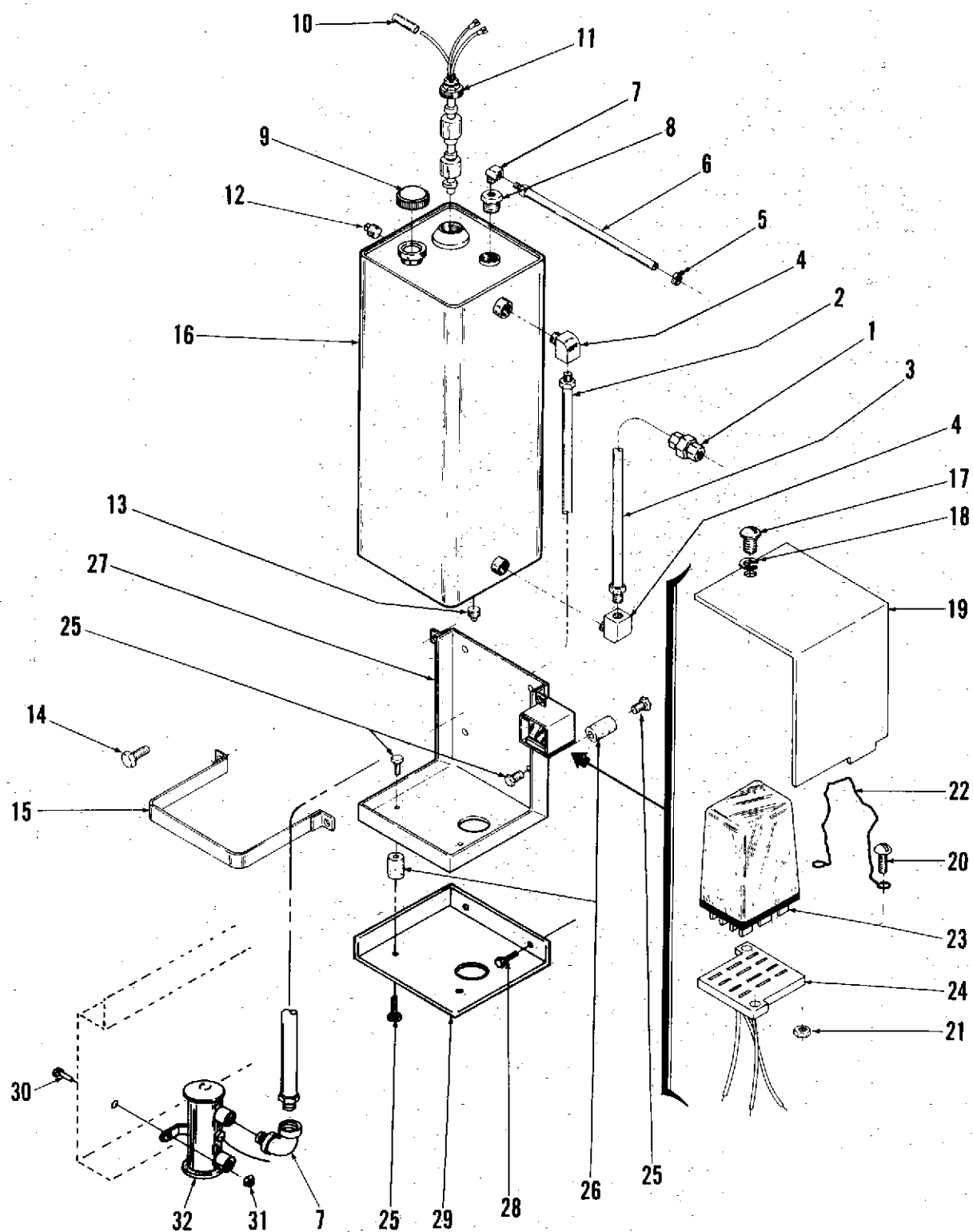


XF51269

# **OPTIONAL FUEL TANK RESERVIOR (HOUSED SETS)**

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	FUEL TANK RESERVIOR			17	813-0098	1	Screw, Machine - Round Head (#10-32 x 3/8")
	179-0513	1	For Housed Sets	18	850-0030	1	Washer, Lock - Spring (#10)
1	502-0051	1	Coupling, Pipe - Brass (1/4" NPT)	19	415-0326	1	Cover, Access - Relay
2	501-0008	1	Line, Fuel - Flexible	20	812-0061	2	Screw, Machine - Round Head (#6-32 x 3/8")
3	501-0015	1	Line, Fuel - Flexible	21	870-1183	2	Nut, Self-locking, Hex - with External Tooth Lock Washer (#6-32)
4	502-0041	2	Elbow, Pipe - Street, 90 DEG, Brass (1/4" NPT) - Inverted Male	22	307-1157	1	Spring, Hold Down - Relay
5	503-0685	1	Clamp, Hose	23	307-1058	1	Relay - 12 VDC
6	501-0226	1	Line, Fuel - Flexible	24	323-0897	1	Socket, Relay (Included Leads)
7	502-0020	1	Elbow, Pipe - Street, 90 DEG, Brass (1/8" NPT)	25	821-0014	6	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")
8	502-0029	1	Bushing, Reducer - Hex (1/4" NPT x 1/8" NPT)	26	402-0070	4	Mount, Vibration
9	159-0007	1	Cap, Fuel Tank	27	415-0324	1	Bracket, Mounting - Fuel Tank
10	332-0556	4	Connector, Splice	28	870-0048	2	Nut, Self-locking, Hex Washer Head (5/16-18)
11	415-0335	1	Switch, Float - Liquid Level	29	821-0016	2	Screw, Self-locking - Hex Washer Head (5/16-18 x 3/4")
12	505-0054	1	Plug, Pipe - Square Head (1/4" NPT)	30	821-0018	2	Screw, Self-locking - Hex Washer Head (1/4-20 x 5/8")
13	505-0110	1	Plug, Pipe - Square Head (3/8" NPT)	31	149-1830	1	Pump, Fuel - Electric, 12 VDC
14	821-0013	2	Screw, Self-locking - Hex Washer Head (1/4-20 x 1")	32	821-0014	2	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")
15	415-0323	1	Strap, Retaining - Tank	33	130-1005	1	Bracket, Mounting - Fuel Pump
16	415-0325	1	Tank, Fuel - Day				

# OPTIONAL FUEL TANK RESERVOIR (UNHOUSED SETS)



FS1270

# **OPTIONAL FUEL TANK RESERVIOR (UNHOUSED SETS)**

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	FUEL TANK RESERVIOR			16	415-0325	1	Tank, Fuel - Day
	179-1599	1	For Unhoused Sets	17	813-0098	1	Screw, Machine - Round Head (#10-32 x 3/8")
1	502-0051	1	Coupling, Pipe - Brass (1/4" NPT)	18	850-0030	1	Washer, Lock - Spring (#10)
2	501-0008	1	Line, Fuel - Flexible	19	415-0326	1	Cover, Access - Relay
3	501-0007	1	Line, Fuel - Flexible	20	812-0061	2	Screw, Machine - Round Head (#6-32 x 3/8")
4	502-0041	2	Elbow, Pipe - Street, 90 DEG, Brass (1/4" NPT) - Inverted Male	21	870-1183	2	Nut, Self-locking, Hex - with External Tooth Lock Washer (#6-32)
5	503-0685	1	Clamp, Hose	22	307-1157	1	Spring, Hold Down - Relay
6	501-0226	1	Line, Fuel - Flexible	23	307-1058	1	Relay - 12 VDC
7	502-0020	2	Elbow, Pipe - Street, 90 DEG, Brass (1/8" NPT)	24	323-0897	1	Socket, Relay (Includes Leads)
8	502-0029	1	Bushing, Reducer - Hex (1/4" NPT x 1/8" NPT)	25	821-0014	8	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")
9	159-0007	1	Cap, Fuel Tank	26	402-0070	4	Mound, Vibration
10	332-0556	4	Connector, Splice	27	415-0324	1	Bracket, Mounting - Fuel Tank
11	415-0335	1	Switch, Float - Liquid Level	28	821-0014	2	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")
12	505-0054	1	Plug, Pipe - Square Head (1/4" NPT)	29	403-1118	1	Plate, Support - Fuel Tank
13	505-0110	1	Plug, Pipe - Square Head (3/8" NPT)	30	821-0018	2	Screw, Self-locking - Hex Washer Head (1/4-20 x 5/8")
14	821-0013	2	Screw, Self-locking - Hex Washer Head (1/4-20 x 1")	31	870-0212	2	Nut, Self-locking - Hex Washer Head (1/4-20)
15	415-0323	1	Strap, Retaining - Tank	32	149-1830	1	Pump, Fuel - Electric, 12 VDC

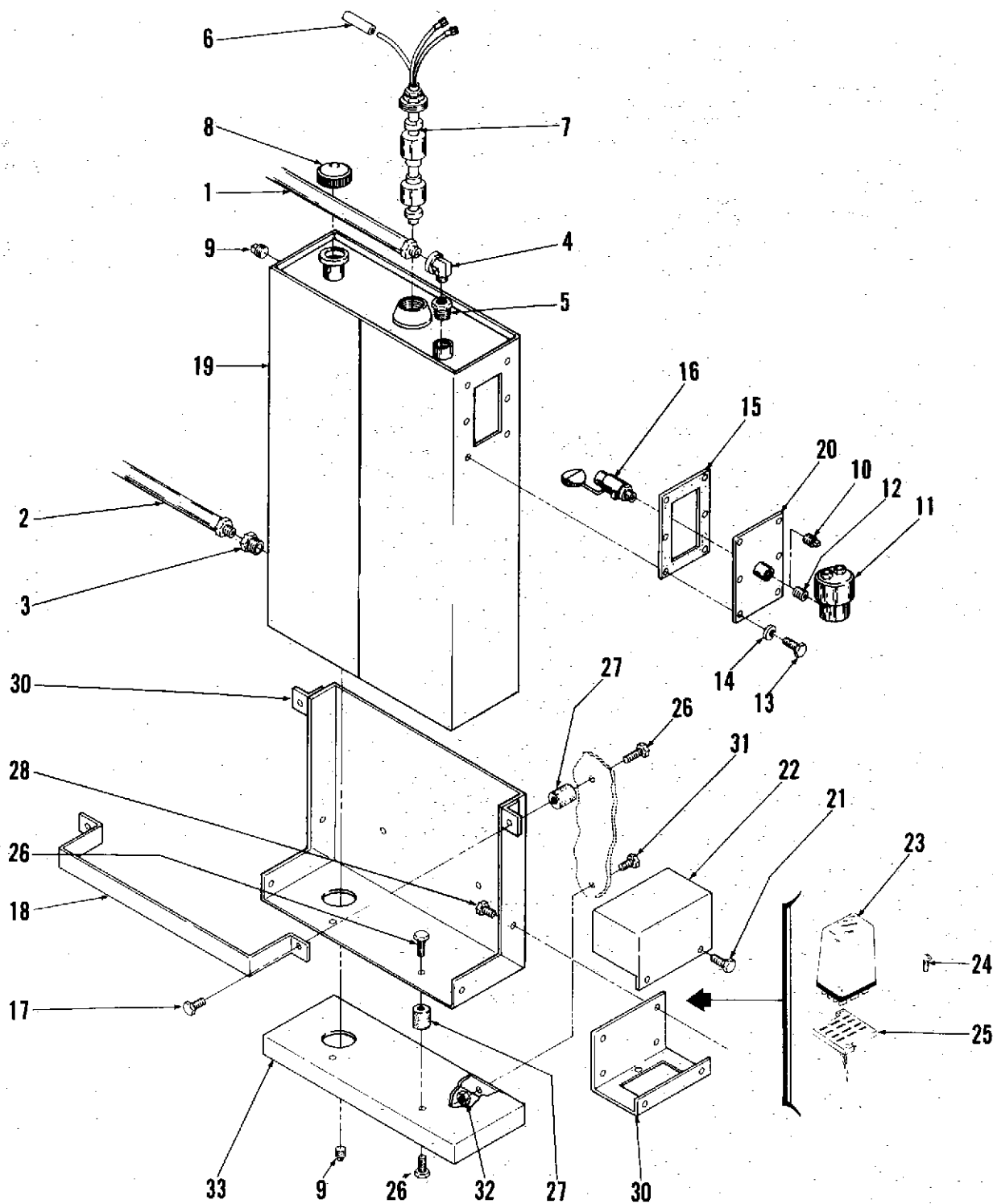
179-2150

179-2155

# OPTIONAL FUEL TANK RESERVOIR (OVERHEAD/UNDERGROUND APPLICATIONS)

C129

C130



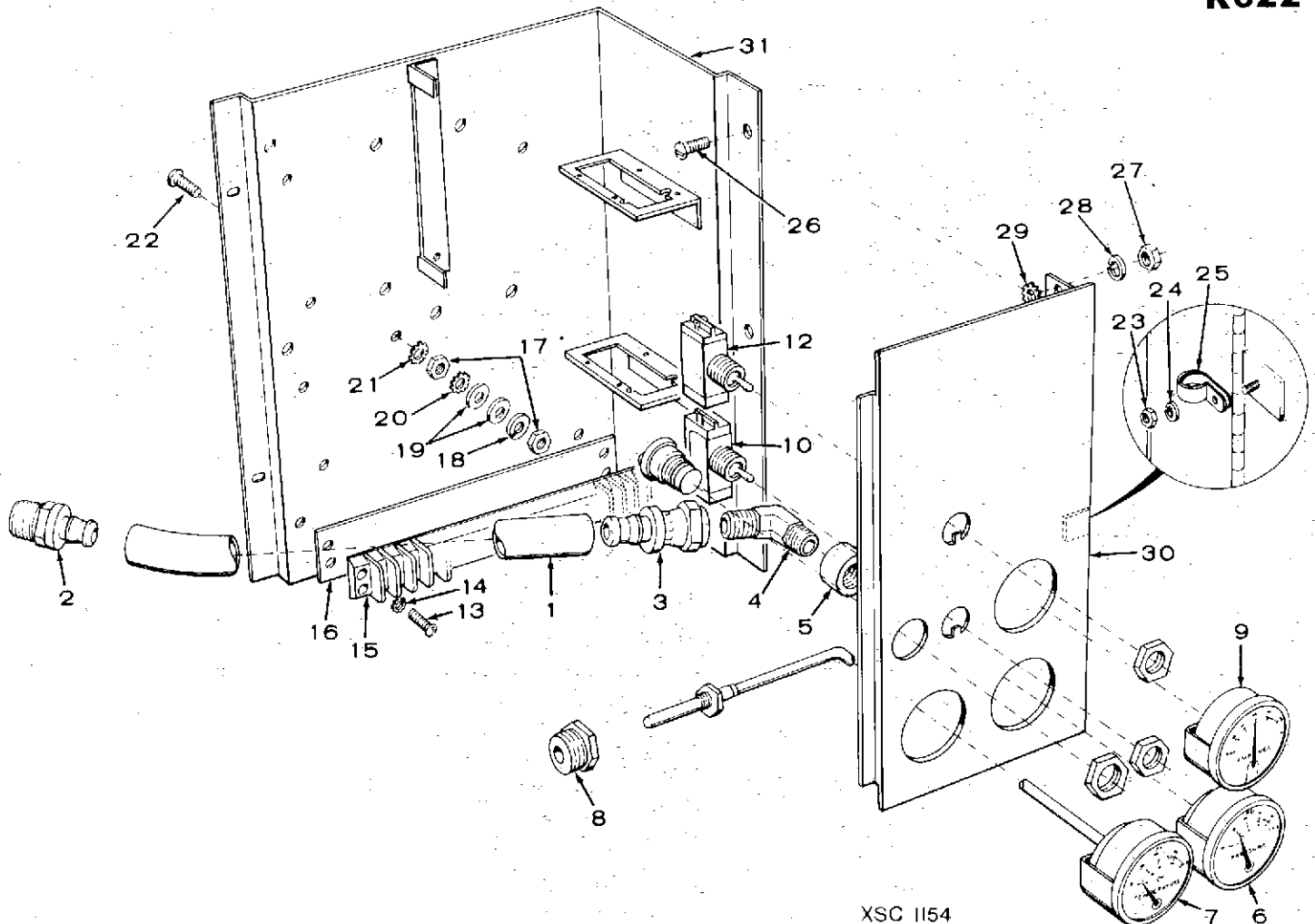
XFS1271

# **OPTIONAL FUEL TANK RESERVIOR (OVERHEAD/UNDERGROUND APPLICATIONS)**

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	FUEL TANK RESERVIOR			17	821-0013	2	Screw, Self-locking - Hex Washer Head (1/4-20 x 1")
	179-2150	1	Overhead Tank Application	18	415-0451	1	Strap, Retaining - Fuel Tank
	179-2155	1	Underground Tank Application	19	415-0468	1	Tank, Fuel - Day (Includes Access Cover Plate)
1	501-0226	1	Line, Fuel - Flexible	20	415-0516	1	Plate, Cover - Access
2	501-0321	1	Line, Fuel - Flexible	21	821-0004	2	Screw, Self-locking - Hex Washer Head (#10-32 x 5/16")
3	502-0029	1	Bushing, Reducer - Hex (1/4" NPT x 1/8" NPT)	22	415-0464	1	Cover, Access - Relay
4	502-0020	1	Elbow, Pipe - Street, 90 DEG (1/8" NPT)	23	307-1058	1	Relay - 12 VDC
5	502-0029	1	Bushing, Reducer - Hex (1/4" NPT x 1/8" NPT)	24	812-0079	2	Screw, Machine - Round Head (#8-32 x 1/2")
6	332-0556	4	Connector, Splice	25	323-0804	1	Socket, Relay
7	415-0473	1	Switch, Float - Liquid Level	26	821-0014	8	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")
8	159-0007	1	Cap - Fuel Tank	27	402-0078	4	Mount, Vibration
9	502-0155	2	Plug, Pipe - Square Head, Brass (3/8" NPT)	28	821-0007	2	Screw, Self-locking - Hex Washer Head (1/4-20 x 1/4")
10	505-0057	1	†Plug, Pipe - Square Head (1/8" NPT)	29	415-0463	1	Box, Control - Relay
11	307-1819	1	£Solenoid - 12 VDC	30	415-0471	1	Bracket, Mounting - Fuel Tank
12	505-0098	1	£Nipple, Pipe - Close (1/8" NPT x 3/4")	31	821-0014	6	Screw, Self-locking - Hex Washer Head (5/16-18 x 1/2")
13	800-0002	6	Screw, Cap - Hex Head (1/4-20 x 3/8")	32	870-0045	3	Nut, Hex (5/16-18)
14	526-0063	6	Washer, Flat - Copper (17/64" ID x 7/16" OD x 1/32" Thk)	33	415-0449	1	Bracket, Support - Fuel Tank
15	415-0467	1	Gasket - Access Plate	† - Parts used only in Underground Tank Application.			
16	309-0401	1	£Valve, Float	£ - Parts used only in Overhead Tank Application.			

# **OPTIONAL ENGINE CONTROL WITH MECHANICAL GAUGES**

**K622**

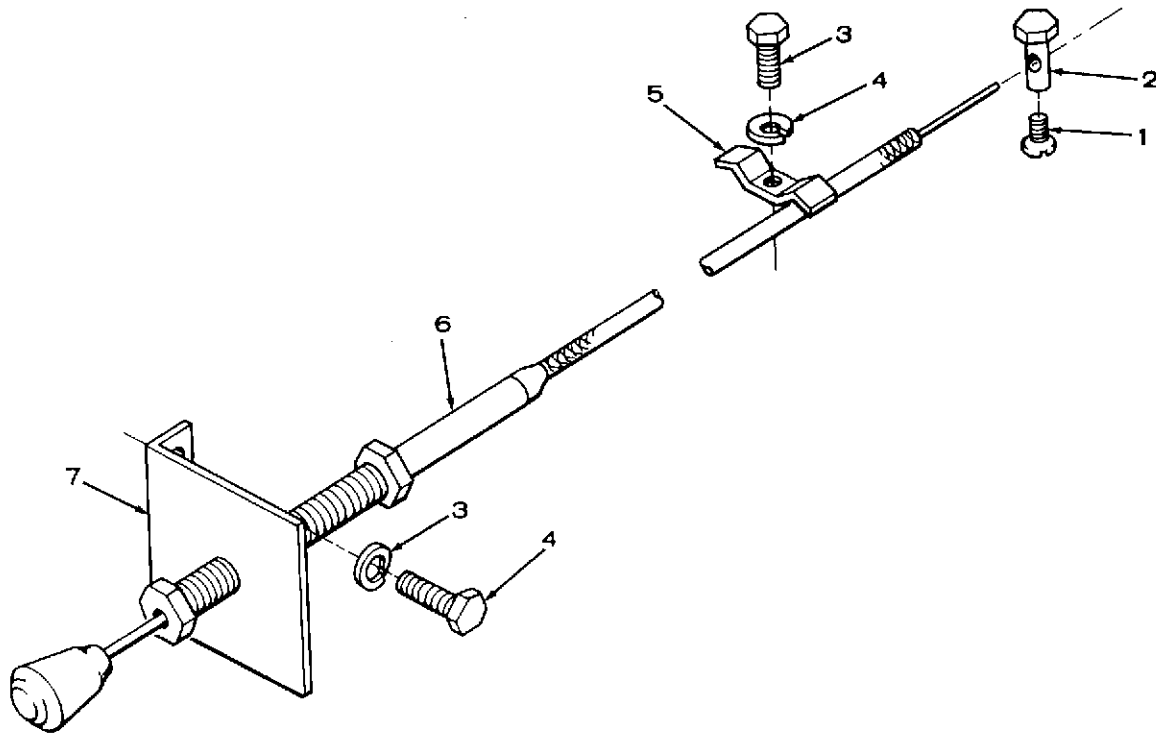


XSC II54

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	503-1077	1	Hose, Rubber - High Pressure (1/4" ID x 1/2" OD x 96")	13	812-0066	2	Screw, Machine - Round Head (#6-32 x 3/4")
2	502-0444	1	Adapter, Pipe to Hose - Male (1/8" NPT x 1/4" ID Hose)	14	853-0003	2	Washer, Lock - ET (#6)
3	502-0445	1	Adapter, Pipe to Hose - Female (7/16-20 UNF x 1/4" ID Hose)	15	332-0795	1	Block, Terminal - 20 Place
4	502-0583	1	Elbow, Pipe - 45 Deg. (7/16-20 UNF x 1/8" NPT)	16	332-1241	1	Strip, Marker - Terminal
5	502-0051	1	Coupling, Pipe (1/8" NPT)	GROUND TERMINAL ASSEMBLY			
6	GAUGE, OIL PRESSURE (Select as Required)			17	871-0010	2	Nut, Hex - Brass (#10-32)
	193-0232	1	Scale Range 0 to 75 PSI	18	850-0030	1	Washer, Lock - Spring (#10)
	193-0233	1	Scale Range 0 to 150 PSI	19	526-0205	2	Washer, Flat - Brass (13/64" ID x 7/16" OD x 1/16" Thk)
7	GAUGE, TEMPERATURE (Select as Required)			20	853-0008	1	Washer, Lock - ET (#10)
	193-0234	1	With 72" Capillary Tube	21	856-0003	1	Washer, Lock - EIT (#10)
	193-0235	1	With 84" Capillary Tube	22	815-0203	1	Screw, Machine - Round Head, Brass (#10-32 x 7/8")
	193-0236	1	With 96" Capillary Tube				
	193-0305	1	With 144" Capillary Tube	23	870-0053	1	Nut, Hex (#10-32)
8		1	Reducer, Hex (Included with Gauge) (5/8-18 UNF x 1/2" NPT)	24	850-0030	1	Washer, Lock - Spring (#10)
9	302-0061	1	Ammeter	25	332-0051	1	Clamp, Loop
10	308-0088	1	Switch, Toggle (DPST)	26	815-0026	5	Screw, Machine - Truss Head (#10-32 x 3/8")
11	308-0297	1	Switch, Push	27	870-0053	1	Nut, Hex (#10-32)
12	308-0155	1	Switch, Toggle (SPST)	28	850-0030	1	Washer, Lock - Spring (#10)
				29	856-0003	1	Washer, Lock - EIT (#10)
				30	301-4009	1	Panel, Control - Engine
				31	301-3253	1	Bracket, Mounting - Engine Control

# OPTIONAL VERNIER THROTTLE

A64



M-1179

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	812-0075	1	Screw, Machine - Round Head (#8-32 x 1/4")
2	152-0158	1	Swivel
3	800-0005	3	Screw, Cap - Hex Head (1/4-20 x 3/4")
4	850-0040	3	Washer, Lock - Spring (1/4")
5	152-0036	1	Clamp, Holddown - Cable
6	152-0120	1	Throttle Control - Vernier
7	151-0230	1	Bracket, Mounting - Throttle Control

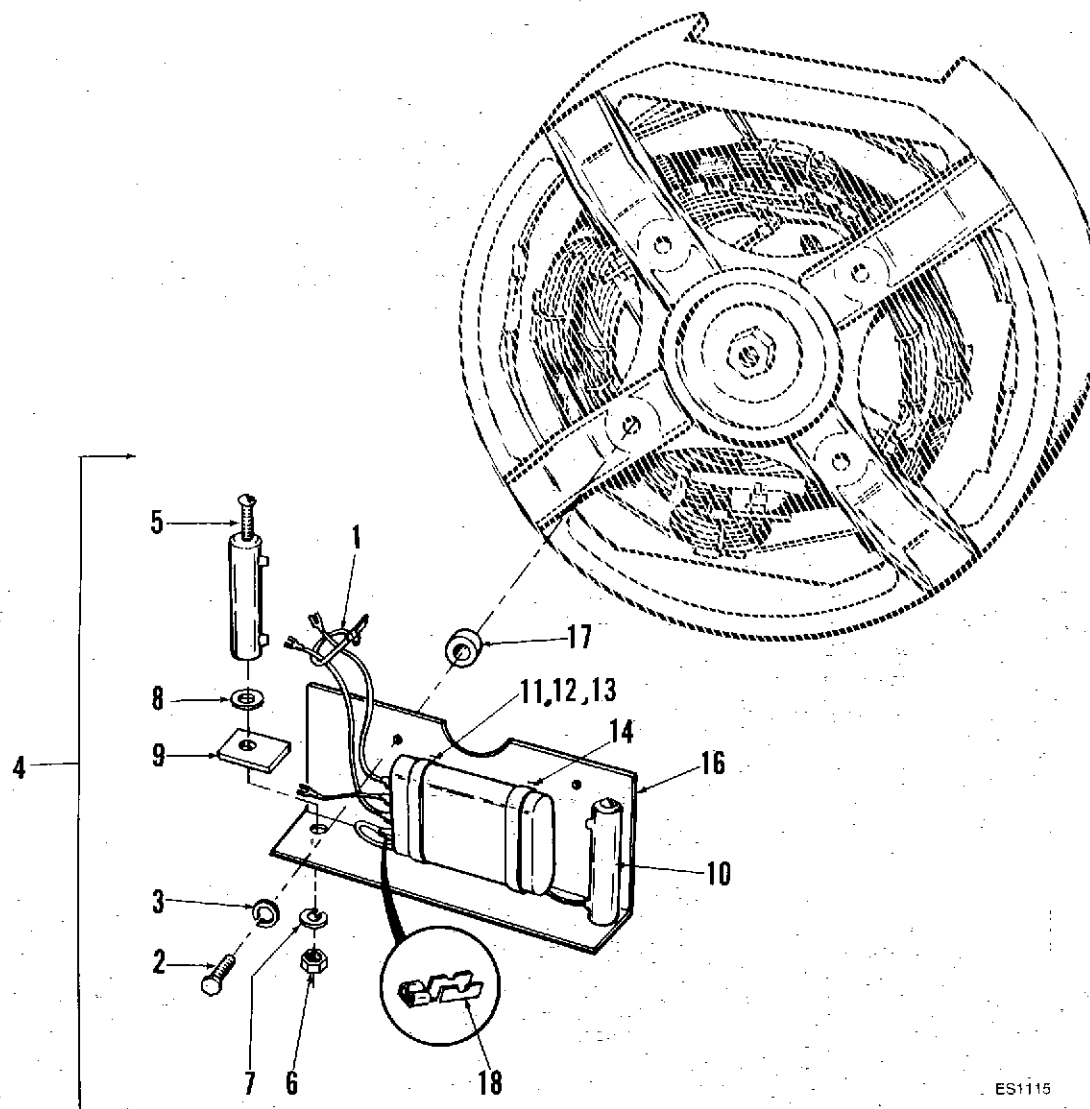


232-2694

# OPTIONAL VOLTAGE REGULATOR FILTER

K524

232-2695



ES1115

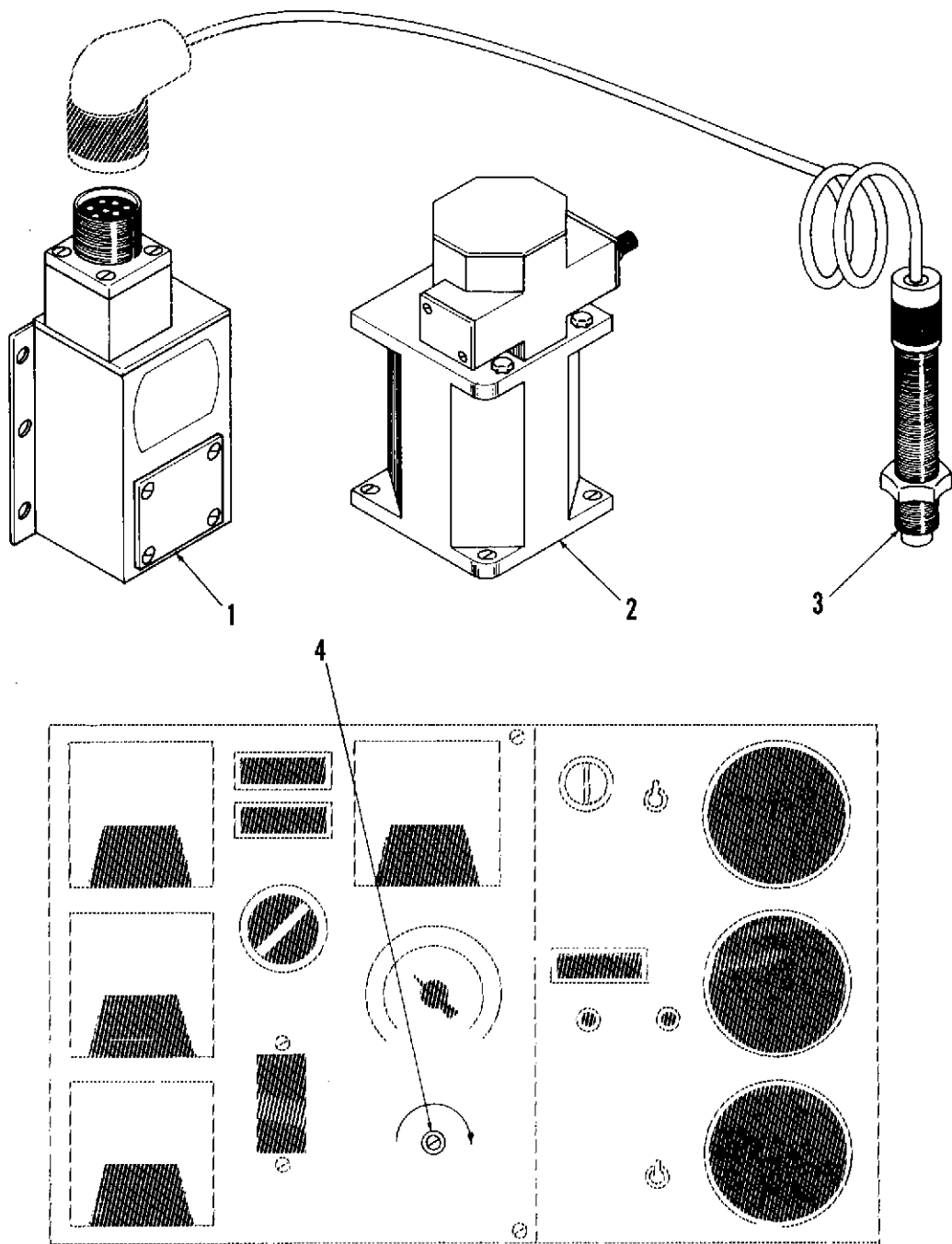
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	KIT, FILTER - VOLTAGE REGULATOR (Includes Parts Marked *)		
	232-2694	1	Used on Sets with End Bell Mounted Voltage Regulator
	232-2695	1	Used on Sets with Voltage Regulator Mounted in Control Box
1	332-0941	5	*Tie, Cable
2	800-0003	2	*Screw, Cap - Hex Head (1/4-20 x 1/2")
3	850-0040	2	*Washer, Lock - Spring (1/4")
4	*FILTER ASSEMBLY (Includes all Parts Except as Indicated)		
	232-2219	REF	Part of Kit 232-2694
	232-2692	REF	Part of Kit 232-2695
5	812-0165	2	Screw, Machine - Round Head (1/4-20 x 4-1/2")
6	862-0001	2	Nut, Hex (1/4-20)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
7	850-0040	2	Washer, Lock - Spring (1/4")
8	304-0427	4	Washer, Centering (1/4")
9	304-0292	2	Insulator
10	354-0025	2	Resistor, Fixed, Wire Wound (10-Ohm, 100 Watt)
11	813-0098	4	Screw, Machine - Round Head (#10-32 x 3/8")
12	870-0053	4	Nut, Hex (#10-32)
13	850-0030	4	Washer, Lock - Spring (#10)
14	312-0189	2	Bracket, Mounting - Capacitor
15	312-0188	1	Capacitor, Fixed - 15 MFD, 440 VAC
16	232-2210	1	Bracket, Mounting
17	232-2693	3	Spacer (Part of 232-2692 Only)
18	TERMINALS (Select as Required)		
	332-1279	8	Insulated 14-16 AWG
	332-0529	4	Lug 14-16 AWG

\* Parts included in kits.

**OPTIONAL  
GOVERNOR**

**A218**



XFS1272

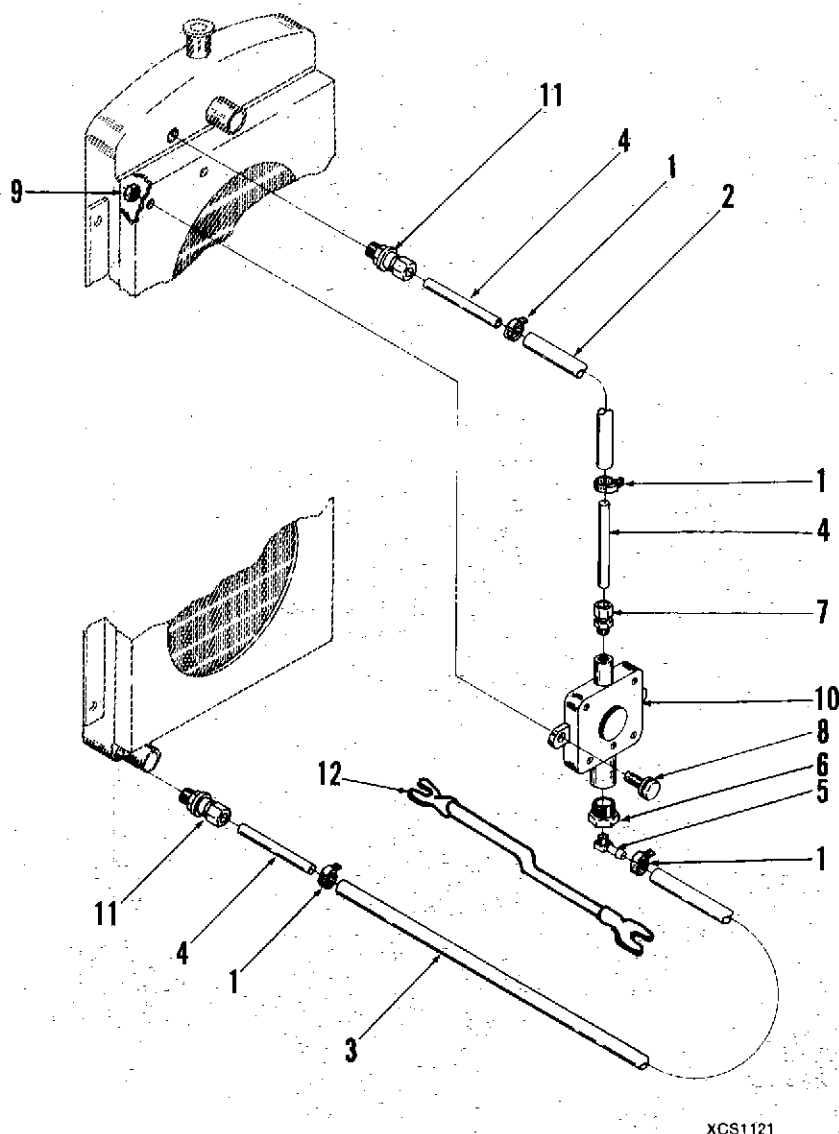
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	151-0430	1	Control Unit - Governor (12V)
2	151-0452	1	Actuator - Governor (12V)
3	151-0411	1	Pickup, Magnetic
4	151-0402	1	Potentiometer - Speed Control (5K Ohms)

179-1157

179-1158

# OPTIONAL LOW COOLANT LEVEL SWITCH

H389



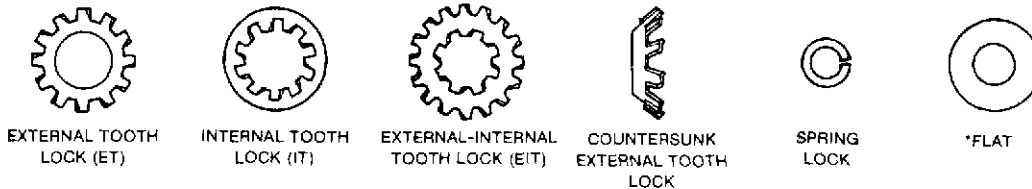
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	503-0446	4	Clamp, Hose
2	503-0707	1	Hose, Vinyl (1/4" ID x 12" Lg)
3	503-0728	1	Hose, Vinyl (1/4" ID x 31" Lg)
4	130-2053	3	Tube (1/4" OD x 2" Lg)
5	502-0313	1	Elbow, Tube - 90 DEG, Brass (1/8" NPT x 1/4" Tube)
6	505-0151	1	Bushing, Reducer - Brass (1/2" NPT x 1/8" NPT)
7	502-0801	1	Connector, Tube - Brass (1/4" NPT x 1/4" Tube)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
8	821-0011	2	Screw, Self-locking - Hex Washer Head (1/4-20 x 7/8")
9	870-0212	2	Nut, Self-locking - Hex Washer Head (1/4-20)
10	193-0329	1	Switch - Coolant Level
11	502-0809	2	Adapter, Tube (Blind Hole Fitting) (5/8" OD x 1/4" Tube)
12	LEAD, ELECTRICAL (Select as Required)		
	336-8343	1	30" Lg
	336-8344	1	36" Lg

# HARDWARE IDENTIFICATION

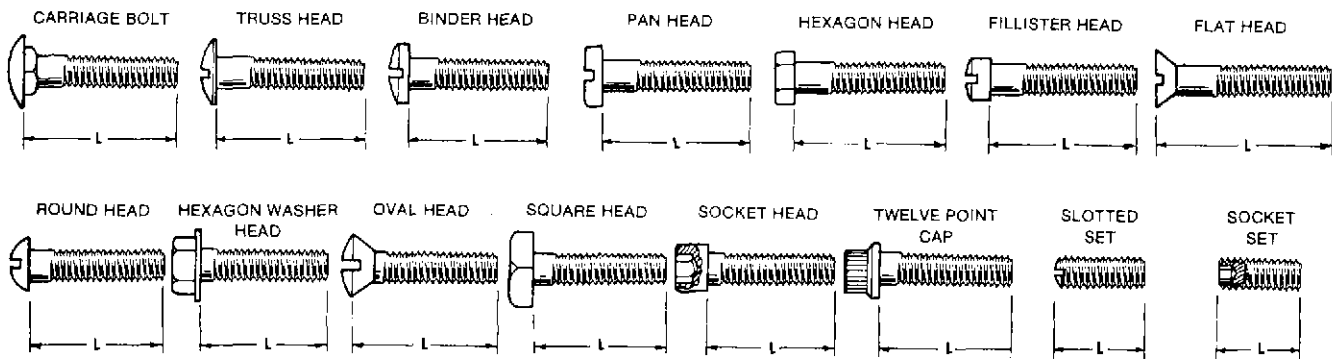
Illustrated hardware items are only for identification purposes. All hardware items listed throughout this parts catalog are steel SAE grade five (5) or lower (zinc plated with clear chromate dip) unless parts description indicates differently. All dimensions are in inches.

## WASHER TYPES



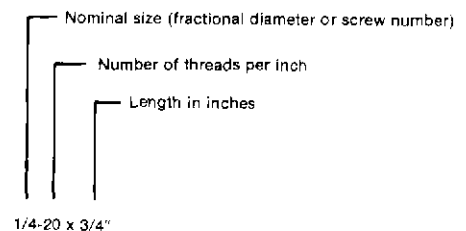
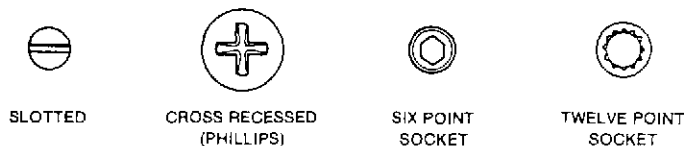
\* - Flat washer dimensions given are: Inside Diameter (ID), Outside Diameter (OD) and Thickness (Thk).

## BOLT AND SCREW TYPES



L - Measure length between these points.

### INTERNAL DRIVE TYPES



## NUT TYPES



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**612 574 5000**  
**Telex 29 0476**  
**TWX 910 576/2833**



**Power  
Generation**

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